Timbre as Discourse

Contemporary Performance Practice on the Violin

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Abstract

Timbre as Discourse: Contemporary Performance Practice on the Violin addresses first the issues of musical timbre that concern our general musical discourse, in order to clarify the foundation upon which we operate our practice of music making – both composition and performance. Our current performance practice, regardless of the historical period of the repertoire concerned, embodies the latest state of the continuum of philosophical developments surrounding music over the centuries. The violin is then taken as a reference point to examine this continuum through its position in the current state of practice.

Musical performance raises inevitable questions of contextuality through its reliance on time and space for expression. On the other hand, musical composition has developed to extend beyond the boundary of the traditional notion of performance. Appropriate contextualisation of such manifestations – extended technique and unique notational practices – is sought by examining their effect on the perception of musical timbre. The examination concludes with a discussion on the employment of time and timbre in the context of *Xnoybis* for violin by Giacinto Scelsi (1905-1988) and aims to elucidate issues relevant to the performance practice of new music.

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Preface

Increasing specialisation in music has tended to enlarge the separation between the activities of composition, performance and musicology, leading to polarisation. One consequence of this has been a variety of startling technical advances in individual disciplines, where techniques have become refined to an almost esoteric level. However, this development has in some cases progressed at the expense of aesthetic and practical considerations. The growing variety of modern society brings into question whether contemporary musicians really have the necessary training and culture to execute an integrated and artistic performance which recognises the complexity of the music in hand.

Specialisation in performance has modified the scope of practice on the violin centring around the works of the eighteenth and nineteenth centuries, the period considered as the golden age of the instrument. The establishment of performance practice in this repertoire around the first half of the twentieth century culminated in several well-known publications on the 'art of violin playing' (these will be discussed in Chapter Three). The principles established at this time are still the basis of modern violin playing. However, this has slowed down further investigation into areas of recently developed musical discourse. It is thought that as composition and musicology develop and diverge, ideas in performance practice ought to change accordingly. The question is therefore why such a development has not influenced performance. The answer lies in the unique circumstance of music whereby performance is the only discipline that deals with a single dimension of time. Assuming that developments in other disciplines in the twentieth century have their foundation in the written form of their medium, this thesis considers first the converging area of musical being (as expressed in the temporal dimension) and then the relationship between composition and performance.

Historical and theoretical studies of music may advance the level of understanding of a musical work. The expertise derived from musicological studies may lead to a more informed notion of performance practice, which then deserves to be realised by an appropriate means of execution. However, the investigation into the means of execution has often been left unchallenged. I suggest that this is the

most elusive but perhaps the most crucial of all interpretative skills because of its immediate affectivity in performance. Interpretation is a combined act of intellectual and physical understanding. In the end what is at stake is creativity, since the lack of such aggregate skills may restrict an imaginative space. Hence this thesis approaches the question of musical *timbre*, the nucleus of energy which projects music in space and time, as a process towards understanding the network of relationships between all levels of interpretation.

Although cross-disciplinary studies have been developing in recent years, certain areas of the repertoire are left behind, such as the music of today. Indeed, performance practice in contemporary music is rarely discussed; the expertise involved in the separate disciplines is such that the gulf between performer and composer has tended towards a mutual distrust. Arguably, however, this new repertoire demands an even higher level of interpretative skill. It is when interpretative skills achieve competence and become subject to an imaginative function that a truly artistic performance may emerge. The final and most important feature of any reading/execution of a musical text is the exposure of that text to the vitality of the imagination.

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Many thanks to Prof. Roger Marsh for his support throughout this project. Others have also made numerous contributions to the project and I would like to thank Anton, Daniel, James, Nic, Nicky, and Paul in particular. However, the outcome of this project is my own work and I am responsible for all the attributes within it.

This work is dedicated to my parents with appreciation of their support for my vocation and of their belief in the power of education, to both of which I owe a significant part of what I am.

I. Introduction to the question and framework of timbre

1. The fundamental location of timbre in musical discourse[1]

What is musical 'content'?

Eduard Hanslick addresses this question in *The Beautiful in Music*:

> . . . it is precisely the "specifically musical" element of the creation of inventive genius which the contemplating mind apprehends and assimilates. These concrete musical images, and not the vague impression of some abstract feeling, constitute the spirit of the composition. The form (the musical structure) is the real substance (subject) of music – in fact, is the music itself, in antithesis to the feeling, its alleged subject, which can be called neither its subject nor its form, but simply the effect produced.[2]

For Hanslick music possesses an aesthetic autonomy, so that what he calls 'feeling' (*Gefühl*) does not manifest itself except in specifically musical elements. It is in the form's communicative capacity that we perceive the feeling. Therefore the musical structure *is* the substance by virtue of accommodating 'concrete musical images'. The 'specifically musical' element (the combination of definite successions of sound) embodies these images in two different ways: the first being on an abstract level where the sound symbolises the feeling, and the second being on the physical level where the sound produces patterns. The first instance implies that the sound is organised *for something*. The very process of symbolisation brings about this directive force and the meaning becomes enclosed in the substance. In this way the substance becomes an anchor for musical signification and the meaning provides the musical structure with an idealistic concreteness. The second instance (the physical

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[1] Here the term 'musical discourse' is used to specify a category of musical communication which comprises (or is believed to comprise) some models or structures to convey the content. More discussion on the definition of the subject is found in Eero Tarasti, *A Theory of Musical Semiotics*, Indiana University Press, Bloomington, 1994, pp. 16-20.

[2] Eduard Hanslick, *Vom Musikalischen-Schönen*, 1854; *The Beautiful in Music*, translated by G. Cohen, Liberal Arts Press, Indianapolis, 1957, p. 92. Although in a very different translation, the same text is more widely available in Eduard Hanslick, *On the Musically Beautiful*, translated by G. Payzant, Hackett, Indianapolis, 1986, p. 78.

level) on the other hand offers a play of acoustic properties which provides the musical structure with a physical concreteness. Hanslick does not deny either of the modes in which musical substance resides, and is extremely reluctant to declare a preference for either of them. For him the 'form' is too significant to be merely a conveyer of feeling on the one hand, and the abstract 'meaning' within the form is too essential to be eliminated from the substance on the other.

What Hanslick tells us is the extent to which the semantic dimension is at work in the substance of musical discourse. Music cannot exist without musical 'ideas', yet no one can clearly identify the specific meaning of a particular musical event despite the concreteness of the 'musical structure' and the physical sound. The area of these two polarising dimensions in musical discourse, the semantic and the physical, varies in proportion from one musical work to another but their problems of co-existence are present in all musical events. The essence of 'substance' must be more elementary.

If the substance of music operates in both categories suggested by Leonard Meyer, of 'absolutist' and 'referentialist', the extent of the semantic dimension becomes clearer.[3] The 'absolutist' believes that musical meaning is derived exclusively from the relationships between the constituent elements of the work itself, while for the 'referentialist' there cannot be meaning in music, except by referring to an extra-musical universe of concepts, actions, emotional states, and characters. If meaning does in fact exist both within and outside music as soon as the sound formulates itself into a work, then it follows that the *energy* in this formulation is itself the cause of meaning in music. The concrete substance in music is the *character* of this energy. It then becomes a necessary first step to remove any semantic element from the question of substance in order to understand the properties of this energy. We may ask: 'what constitutes music as we hear it?', so that the investigation is directed towards the physical and mental realities in which music discloses itself, and the complexity of the network leading from within this energy of disclosure. The method of inquiry is to sketch the outline of the musical reality (as the most concrete state of the substance) and for the moment isolate it

[3] Leonard B. Meyer, *Emotion and Meaning in Music*, University of Chicago Press, Chicago, 1956, pp. 1-3 and pp. 32-42.

from any surrounding context which provides directive power of signification and determines the area of meaning.

> Music is an experience of time, in an immediate fashion, because it unrolls linearly, because it is an alternation of sound and silence and (from one period to another) a particular way of filling silence.[4]

The first context music encounters is time: indeed music does not exist without time. The temporal dimension yields the existence of substance by virtue of providing a boundary, and the dynamic activity of the substance outlines the temporal space. Within this boundary sound and silence is the first differentiation to be identified in music. The relationship between sound and silence is dynamic. Sound is anything that is greater than silence. Sound may emerge from silence, or silence from sound, or they may create contrast; the disposition of sound and silence is the principal source of energy. Whilst silence holds 'nothingness' in a given time (confirming the nucleus of sound), sound unrolls linearly an acoustic activity operating in the parameters of pitch, timbre and amplitude (radiating the nucleus). Thus the animation of the musical nucleus projects the sound into the temporal space in which the constituent parameters articulate a specific distribution of energy to be identified as a specific musical event.

The composition of musical sound

The three parameters of musical sound (pitch, timbre and amplitude) have different physical features. Pitch depends on the length of the period of oscillation; timbre depends on the form of vibration; amplitude depends on the size of oscillation. Among them pitch is the most well discussed and developed in the discourse of Western music.

Musical pitch is determined by what the ear perceives as the most fundamental wave-frequency of a sound. Pitch has a precisely definable character both in terms of musical idea and in those of natural phenomena, and different frequencies can also be differentiated by the listener to the extent that the production

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[4] Jean-Jacques Nattiez, *Music and Discourse*, translated by C. Abbate, Princeton University Press, Princeton, 1990, p. 118.

of a melody (a series of musical pitches) can be easily achieved. This suggests that pitch operates in a way in which the differentiation is universally constant and abstract, and has a property which is accountable, executable, and communicative. Consequently, the definable character allows musical pitch to be subjected to independent and logical organisation. We can observe that pitch has for a long time been an object of scientific investigation with a view to revealing an ideal form of nature, and stimulated the creative imagination to realise 'harmony' as a result of the ideal form in music. This characteristic of musical pitch (or indeed of any object that possesses the same characteristic) is instrumental to the logic of human thought, and has naturally been a focus of attention in Western civilisation.[5] It is the inclination towards the logical approach that has largely affected and influenced the development of Western music and its history of composition and performance.

We can observe the significance of this concentration on the pitch parameter in a number of existing facts. An example is the way in which we notate musical pitch and then realise it. We have a system of knowing what-sign means what-note by way of finding the location indicated on the musical sheet. The gradations can be shown in the minute unit of a quarter-tone or even smaller. The notation of musical pitch symbolically represents its complex logic (a condition complemented by the actuality of its written-ness) and imperatively governs its projected property. Musical pitch is given the most strict attention in performance practice with respect to the correlation between what is written and what sounds. Pitch is the one parameter supposedly unalterable in performance. Furthermore this principle of pitch notation has ruled the creative process of composition to a large extent. Composition is perhaps the discipline which dominates our inclination towards logical thinking above all other aspects of Western musical practice.

However, musical sound has always been materialised as a complete whole and perceived as such. We know what the sound *is*. We know that pitch is only one of the numerous set of parameters which make up a sound, and that is why we can be pleasantly surprised or offended by a sound with whose pitch we are familiar, but of which other parameters are unfamiliar. Arnold Schoenberg, in spite of his

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[5] See for example the discussion of acoustics in the context of Western history in Frederick V. Hunt *Origins in Acoustics: The Science of Sound from Antiquity to the Age of Newton*, Yale University Press, New Haven, 1978.

concentration on the investigation of harmony, does not forget to make a point of this and contemplates the possibility of controlling the totality of musical sound.

> In a musical sound (*Klang*) three characteristics are recognised: its pitch, color [timbre], and volume. Up to now it has been measured in only one of the three dimensions in which it operates, in the one we call 'pitch'. Attempts at measurement in the other dimensions have scarcely been undertaken to date; organization of their results into a system has not yet been attempted at all. . . . Perhaps we should differentiate still more precisely, if attempts at measurement in this second dimension had already achieved a palpable result. . . . For the present we judge the artistic effect of these relationships only by feeling. How all that relates to the essence of natural sound we do not know, perhaps we can hardly guess at it yet; but we do write progressions of tone colors without a worry, and they do somehow satisfy the sense of beauty. What system underlies these progressions?[6]

Schoenberg recognises the problem of timbre to be that this parameter seems less controllable or definable than that of pitch. When he attempts to define timbral progression, the technique of differentiation relies on instrumentation to provide the constituent elements of varied textures.[7] However, this method operates both *within* and *beyond* the boundary of our logical approach towards timbre. Its controllability is tied to the physical premises of instruments and its definability depends on the source values given to their context. For Schoenberg the structure of musical timbres does not seem fully containable within the boundary that is explicable.

The dimension of musical amplitude operates in a manner that is somehow more complex than the other two. Amplitude is physically accountable.[8] However, there are two factors that interfere with its application. First, both pitch and timbral variations affect *perceived* loudness, which is definable but only within a specific acoustic context. Second, amplitudinal variation can transform the timbre in the voice and musical instruments. Musical amplitude can vary from one context to another so that the definitive measure of amplitude becomes impractical. This

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[6] Arnold Schoenberg, *Harmonielehre*, Universal Edition, Wien, 1911; *Theory of Harmony*, translated by R. E. Carter, Faber, London, 1978, p. 421.

[7] The most extreme example of this is 'Farben' from Arnold Schoenberg, Five Pieces for Orchestra Op. 16, Peters Edition, Frankfurt, 1909.

[8] Although the measurement (decibel) is not of the *quantity* but of the *relationship* of energy flow between any two sound signals. See for example the discussions in Arthur H. Benade, *Fundamentals of Musical Acoustics*, 1976; second revised edition, Dover, New York, 1990, p. 223 ff.

explains the common practice whereby dynamic variants (*f, mf, mp, p*, and so on) are considered to be relative, or even symbolic.

Yet musical timbre and amplitude *are* felt more immediately by instinct, to the extent that 'feeling' can dictate their organisation (as Schoenberg suggests). So how are they – the well defined pitch parameter on the one hand and the approximately understood timbre and amplitude parameters on the other – related to each other? Again Schoenberg suggests:

> The tone becomes perceptible by virtue of tone color, of which one dimension is pitch. Tone color is, thus, the main topic, pitch a subdivision. Pitch is nothing else but tone color measured in one direction.[9]

Although he does not discuss amplitude, tone colour (timbre) is, according to him, the aggregate of sound. If we suppose that timbre is the sum of all accountable and unaccountable dimensions involved in sound, amplitude also becomes a subdivision of it. Defining timbre as such presents an advantage: sound is conceived in its entirety. It has a disadvantage: timbre is a complex combination of parameters which become impossible to isolate. Therefore I suggest that timbre in the following discussions should be understood as the entirety of sound excepting only highly organised aspects (pitch and some aspects of amplitude)[10] within a musical discourse. The focus is in the investigation of the attributes of sound which may not be describable but exist there and are instantly perceived. Pitch and amplitude will be relevant at all times but the substantial part of the discussions will be directed towards the areas where the sound relates to less identifiable strata of musical organisation.

The question of identity

The word 'timbre' has three meanings. 1) timbrel / kettledrum, 2) *timbre* as in modern French meaning a stamp, 3) sonorous quality of any instrument or of a

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[9] Schoenberg, *Theory of Harmony*, p. 421.

[10] 'Some aspects' are those where the amplitude increases and decreases proportionally without changing the length (pitch) and form (timbre) of the frequency, which therefore can be subjected to independent organisation. There are other aspects of amplitude where it affects the complex of sound with less definable results: in the practice of voice and instruments the amplitudinal changes often cause transformation within the other parameters, and this is to be considered as a timbral metamorphosis affected by amplitude.

voice.[11] *Tymbre* as 'a kind of drum' in Old French is derived from the Mediaeval Greek word τψμβανον (tymbanon) whose components signify 'blow, impression' and 'to beat, to strike'. The Greek sense of the word describes the motion of something thrust towards an object. The perceptibility of this motion in a human being constitutes the meaning of its Latin form *tympanum*, which is used to describe 'the drum of the ear' in anatomy. The present usage of timbre as character or quality of sound arises from our auditory perception of the ancient instruments, the range of sensory responses we have that enable us to distinguish instruments in the same way as we distinguish colours (hence *Klangfarben* in German). On the other hand the modern French meaning of the word comes from the motion it implies (as in Latin), and therefore refers to a cause or declaration of origin.[12] One of the problems which make the concept of timbre elusive and controversial may come from etymological differences which correspond to two different stages of development of the idea. When Schoenberg talks about *Klangfarben* he is referring to the variability in a number of sound colours. Although he suspects its presence, Schoenberg falls short of asserting the fact that the timbre is an energy with the potential to be differentiated and *internally* organised within an individual instrument or voice. Phenomena manifesting such potential are nevertheless abundant in our musical life in all ages. An example is the concept of 'beautiful tone'.

The facility to produce beautiful tone has been the most important goal in the art of playing string instruments. What constitutes such 'beauty', however, is a matter of cultural circumstances, and the diversity of enthusiasm shown towards obtaining this goal has been considerable. In the case of the violin, nearly every treatise ever written on the subject of playing touches upon the matter of 'tone production' or 'tonalisation'. The ideology differs in quality according to the different social or cultural context but its importance in the manner of performance practice remains central. Violins which possess some unique character of tone are highly sought after and this has created a market where the difference in value between 'exceptional', 'excellent', 'good' and 'merely practical' violins is

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[11] From Eric Partridge, *Origins*, Routledge & Kegan Paul, London, 1958, and *The Oxford Dictionary of English Etymology*, edited by C. T. Onions, Oxford University Press, 1966.

[12] *Tymbre*, a striking object was transferred to a kind of bell, especially a hemispherical clock (or table) bell, and thence to a skull-cap of metal, a helmet, and in Heraldry to the crest over the shield in a coat of arms. From this source it also came to be applied to a crest impressed or stamped upon a legal or official document - a stamp - and whence to a postage-stamp.

enormous. We praise the different tones of violinists with descriptions such as 'sweet', 'bright', 'intense' and so on. Here 'beautiful tone' is a *condition* to be established before any musical discourse begins. Having both an exceptional instrument and a superb technique of tone production is considered to provide the perfect resource for creating a musical performance. The concept of 'beautiful tone', in other words, is precisely what we may call 'raw-timbre' in the context of the present discussion.

The question of timbral identity, as such, seems to have disappeared from contemporary musical discourse, despite the increasing amount of scientific research on timbre undertaken meanwhile. What causes this contradiction?

Spectral analysis in the field of electro-acoustic composition has offered us some valuable insights into the properties and behaviour of musical sound. Raw-timbre provides the composer with infinite sonic spaces that are continuous and unlimited. The technology offers further information about timbre that is beyond our normal perceptible domain. Information obtained by timbral analysis is thus worked through at various levels of composition, nearly always with the support of an electronic composition system. One of the earliest example is Stockhausen's *Gesang der Jünglinge* (1955/1956). It demonstrates the significant use of this technically derived information to articulate the structure.

In this climate of increasing technological employment, Western music has become more reliant on virtual or metaphysical operations: this raises issues concerning the concept of timbre and the composition of music. Firstly, the creative energy is derived not from the characteristics of the raw material but from the *technical understanding* of these characteristics.[13] The composition becomes a creative manipulation of given information and the performance a reproduction of the process. The extent to which the derivative source-information acts on the psychology of perception is a different matter. What is relevant at this point is the fact that the ideological neutrality and certainty involved in such metaphysical operations produce autonomous art objects. Secondly, spectral modelling questions

[13] The differentiation between the 'characteristics of the raw material' and the 'technical understanding of these characteristics' is best exemplified in the discussions of the early history of cinematography. See for example Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction' in *Zeitschrift für Sozialforschung*, V, 1, 1936; *Illuminations*, translated by H. Zohn, Fontana Press, London, 1973, pp. 211-244.

the very nature of time by representing layers of different temporalities. In order to clarify both of these issues the composer's manipulation of timbre is examined first.

Issues involved in the concept of timbre

The timbre of a musical instrument is largely identifiable due to the characteristics of its construction and manufacture. Although these characteristics are conceived without any reference to stylistic criteria, they follow a precise musical system and standardisation that are products of culture. The tuning of the violin, for example, is based on intervals of a perfect fifth, and the instrument has as a result its 'favourite' keys and 'comfortable' intervals. The body of the violin transmits the vibration more radiantly when a specific action is made by the bow, and hence the normative production of the 'natural' tone is derived. These characteristics constitute the central domain of the timbral spectrum and form a boundary beyond which peripheral or extended techniques evolve. Does this boundary delineate a definitive identity of a given instrument's timbre? We find an answer in our practice of ensemble playing.

The character of individual instruments is central in constituting the sonority of small ensembles, but the timbre of an ensemble is not the aggregate of its components. The timbre of a string quartet has its own ensemble quality. 'To rehearse' as an ensemble is to create this transformation through the interactions between the individual components. A transformed sound in this way does not have a physical identity and is often described in analogy. Indeed timbre is often associated metaphorically with various states of emotion, because it is perceived as having a common *quality*. Berlioz, in his *Treatise on Modern Instrumentation and Orchestration*, describes the timbre of some instruments in this manner.

> Viola: 'the sound of its low strings is peculiarly telling, its upper notes are distinguished by their mournfully passionate accent, and its quality of tone altogether, profoundly melancholy, differs from that of other instruments played with a bow'
> Oboe: 'it has a pastoral character, full of tenderness . . . of timidity'; 'candour, artless grace, soft joy, or the grief of a fragile being, suites the hautboy's accents'
> Cor anglais: 'it has a melancholy, dreamy, and rather noble voice, the tone of which possesses a vague, *remote*, quality that renders it superior to all sentiments of the past, when the composer desires to touch the secret chords of tender memories'

> Bassoon: 'its sonority . . . has a tendency towards the grotesque'; 'the character of its high notes is somewhat painful and suffering'
> Clarinet: 'the high register is somewhat tearing'; 'the character of the sounds of the medium register, imbued with a kind of loftiness tempering a noble tenderness, renders them favourable for the expression of sentiments and ideas the most poetic'; 'the low register is appropriate to those *coldly threatening* effects, those dark accents of *motionless rage*'[14]

Timbre creates illusion by manipulating the cognitive faculty that is formed through our physical and emotional experience. The mode in which we perceive a specific timbre depends on this experience, thus socially defined, and this mode of understanding provides a norm establishing a cognitive definition of the timbre appropriate to that culture.

Timbral definition in electronic music has merely replaced this culturally coded system with scientifically derived information. In this substitution it must be remembered that the constituent system of *experiencing* timbre has essentially remained the same. That is to say that we identify the property of timbre through the culturally coded definition that is *reduced from* the experiences of a given timbre and *applied to* its concept. This process of specification, or symbolic simplification, has impoverished the potential of many timbres, but helped to provide a standard by means of which various timbres can interact between themselves. In *Eine blasse Wäscherin* from *Pierrot Lunaire*, Schoenberg employs this method of synthesis by assembling the flute, clarinet and violin to create a new timbre that requires a partial overcoming by the performers of the timbral quality specific to each instrument. Timbral abstraction has made it possible, both in traditional and electro-acoustic composition, to 'fuse' timbres and construct a virtual reality of new sounds.

The more established the ideological concept of timbre has become, the more its metaphysical dimension of possibilities has in turn become available to musical composition. Just as the standardisation of pitch led to equal temperament, the standardisation in one dimension of timbre increases the malleability of the other dimensions (such as the fusion/illusion of orchestral timbre). Thus timbre can be as much an intentional process as a physical phenomenon. However, such manipulation of timbre in composition postulates the same degree of neutrality and stability in its

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[14] From Hector Berlioz, *Grand traité d'instrumentation*, 1834, revised in 1855; *A Treatise on Modern Instrumentation and Orchestration*, translated by M. C. Clarke, revised and edited by J. Bennett, Novello, London, 1855, p. 25, p. 81, p. 96, p. 101, and p. 107.

perception. The neutral environment of the virtual reality becomes *imposed* upon our perception of the work. How do we then explain the other possibilities of perception? How is the irrevocable sense of *identity*, that penetrates any compositional manipulation, ingrained in the property of musical timbre?

A number of composers working in studios worldwide between circa 1950 and 1970 employed a method of data reduction process which involved the superimposition of static sinusoids and combining them according to structural plans. In reaction to the earlier analysis of sound conducted in the 1950s and to experience gained meanwhile, spectral analysis gradually came to focus around the ways in which it interprets the dimension of time.[15] Since then a number of studies in timbre, beginning with the 'analysis by synthesis' of Risset[16] and through Fourier analysis, have directed themselves towards a conceptual framework that will help us understand more significantly *musical* applications of the mechanical approach towards synthesising sound. By doing so these studies have gradually increased our understanding of the specific temporal property of raw-timbre and consequently raised uncertainty in the area of reproducibility of the musical phenomena from which the data was derived. This experience points out a basic fact:

> . . . the number of oscillations involved in a note, while it is a statement concerning frequency, is also a statement concerning something distributed in time. In fact, the frequency of a note and its timing interact in a very complicated manner. . . . To start and to stop a note involves an alteration of its frequency composition which can be small, but which is very real. A note lasting only over a finite time is to be analysed as a band of simple harmonic motions, no one of which can be taken as the only simple harmonic motion present. Precision in time means a certain vagueness in pitch [meaning the composition of frequencies], just as precision in pitch involves an indifference to time.[17]

The phenomenon of musical timbre must be considered according to its relationship to time, a dimension that renders the fundamental uniqueness of

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[15] See for example Karlheinz Stockhausen, 'Elektronische Musik aus Studios in aller Welt', *Texte zur Musik*, Vol. III (1963-1970), Dumont, Köln, 1971, pp. 242-287. This is a printed version of the lecture series which Stockhausen gave between 1964 and 1966 at West German Radio in Cologne. He reported on the impressions he had formed of a number of studios, including those in Paris, Milan, Brussels, Ghent, Utrecht and at the Philips plant. It illustrates the approaches of the time in electronic music.

[16] First discussed in Jean-Claude Risset, *Computer Study of Trumpet Tones*, Murray Hill, Bell Laboratories, 1966.

[17] Norbert Wiener, 'Spatial-Temporal Continuity, Quantum Theory and Music' (1964), *The Concepts of Space and Time*, edited by M. Capek, Reidel, Boston, 1975, p. 544.

momentum in music. The actuality of a real tone derives not from the frequency domain but from the irregularity of its frequency patterns in a certain duration of time. The property of timbre can be described as a combination of data in the frequency domain with an infinite number of deviations from those data unfolding in the temporal domain.[18] The timbral spectrum is an infinitely complex mass. However, the defective nature of timbre adds potential to its spectra. Firstly, it supplies causes of possible transformation that may unfold in both domains of frequency and time. Secondly, it creates a specificity of musical language which renders possible a particular type of interaction between the actual sound and the virtual organisation (any spectral or musical modelling). This will be discussed later.

Besides, spectral analysis has given an effective framework to connect harmony and timbre in many ways through its strong link with a long practice of harmonic analysis. It has consequently reminded us of a long standing problem of musical time, that there is another complexity of temporality that occurs in music.

Time as we experience it through music can be different from the literal time (duration) taken to experience that music. The first, musical time, is a relationship between us and the events we perceive. It is an ordering principle of experience. The nature of this hermetic temporality is beautifully expressed in these lines by T. S. Eliot:

> For most of us, there is only the unattended
> Moment, the moment in and out of time.
> The distraction fit, lost in a shaft of sunlight,
> The wild thyme unseen, or the winter lightning
> Or the waterfall, or music heard so deeply
> That it is not heard at all, but you are the music
> While the music lasts.[19]

The difference between musical-time and lived-time is the difference between the time that is *presented* and the time that is *taken*. In music these two temporalities

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[18] See for example the studies carried out through various methods of spectral synthesis in Jean-Claude Risset and David L. Wessel, 'Exploration of Timbre by Analysis and Synthesis', *The Psychology of Music*, edited by D. Deutsch, Academic Press, Orlando, 1982, pp. 25-58.

[19] T. S. Eliot, 'The Dry Salvages' from *Four Quartets*, Faber, London, 1944, lines 206-212; cited in Jonathan D. Kramer, *The Time of Music*, Schirmer, New York, 1988, p. 17.

happen *simultaneously*. An example of this dualism is seen in the relationship of metre and rhythm :

> A measure is cyclic, in that after the music has moved through beats 1, 2, 3, and 4 (for example), it goes back to (another) beat 1. Rhythmic groups are not usually cyclic, because they vary considerably and because they are comprised of music, not just beats. It is because meter is cyclic, that it is more resistant to change than is rhythm. Rhythm is a force of motion, while meter is the resistance to that force. Rhythm *can* change the meter, but only with difficulty.[20]

There is something significant in the relationship between meter and rhythm, as cited here, that may be relevant to the composition of the other parameters which have a tendency to dualism. The above quotation does not make it clear, but implies a state of interaction between the temporalities of different levels of organisation, as represented by meter and rhythm. There are points and manners of contact between the two seemingly irreconcilable spaces. The temporalities of the raw-timbre (the phenomenal entity) and of the manipulated timbre (musical structure) exhibit a similar behaviour in *time*.

Timbre and temporalities

What does spectral analysis tell us about timbre in the temporal domain? It tells us first of all that timbre is in flux and that there is always 'a certain vagueness' in its property. How does such vagueness affect musical constructions such as tonality, orchestration, and structure?

Musical composition is an act of organising timbre. Indeed some dimensions of timbre have been central forces for generating structures. As we have seen, pitch is one dimension of timbre and consequently harmony is an organisation of timbre: it follows from this that organised timbre is the form of construction by which music creates its discourse. When a 'defective', raw-timbre is used to realise a composition structured in accordance with the 'effective', organised timbre (whether it be in tonal or non-tonal music), the raw-timbre strives to approximate the effectiveness of the

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[20] Kramer, *The Time of Music*, op. cit., p. 83.

organised timbre.[21] This action has two consequences. It articulates the virtual reality of a composition by approximating it. It also articulates the spontaneity of the raw-timbre that presents itself both 'in' and 'out' of musical time. If we follow the example of the 'beautiful tone' of the violin, we appreciate it both inside and outside of musical context. Sometimes we enjoy its property outside music simply for its pleasant character. Nevertheless, we approve its property even more in music, because it corresponds adequately with the energy involved in the virtual organisation of timbre present in that music. The musical significance of timbral identity is in this *force of approximation* towards the logic of structured form.

Here exists a similarity of behaviour between the metre/rhythm distinction and two modes of timbre. The oppositions in each pair interact by virtue of their *difference*. The raw-timbre and the organised timbre operate on different levels. Neither of the two can superimpose the logic inherent in the other, since there is no 'absolute' point of reference. Their interaction is in the relationship between them, rather than in themselves. Such a differential concept of timbre is essential in understanding the function of timbre in temporal dimensions.

For performed music to represent an abstract structure it has to be presented through physical sound in lived time, and there is no other way for performed music to be communicated. The duality (of levels) of the temporalities and the simultaneity of their presence in our experience of music are the condition of music's existence. Thus the manner in which these temporalities are defined and given possibilities of interaction determines the individuality of every work of music. Furthermore these two temporalities bear some opposing features in music. The abstract structure is linear in so far as it forms its own structure, so that there are 'trains of thought'. Its form of existence therefore comprises that of becoming, whilst the structure that provides its framework is static. On the other hand the 'outside' world (which

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[21] The following two examples are very different in terms of dimensions affected by timbral modulation. However, they present a similar manner of interaction between the two kinds of timbre. The first is equal temperament: it was invented to facilitate easier access towards performing in different keys on the same instrument - that is also to say various timbres in musical composition. This system of uniformity produced a particular perception of the deformity involved in its logic. As a result of equidistance systematically determined between the notes, each key produced its own characteristic sonority and some of them became associated with the human emotions. The second is imitative music: works such as 'la Campanella' - the original by Paganini and the transcription by Liszt - do not merely imitate the auditory actions of the bell; both composers exploit the clear ringing character of the high frequencies of their respective instruments. Whether in practice such approximation is perfectly achievable or not, 'la Campanella' requires an even tone quality in the repeated high notes, which calls for a highly developed technique to execute effectively, therefore attaching another layer to the aesthetic dimensions.

provides the context for all musical events) is non-linear in the way it forms its being. It involves unaccountable phenomena (hence the emergence of 'vagueness') that disrupt the linearity of thought. Its form of existence comprises that of being (remaining in its entity), and the structure is dynamic. The timbre of the 'outside', raw-timbre, is justified by the timbre of the 'inside', organised timbre: the raw-timbre possesses its potential only by virtue of the organised timbre, giving a dynamic envelope for the raw-timbre to fill. On the other hand the organised timbre knows its potential by virtue of the raw-timbre acting within the framework and validating the organised timbre's actuality. The two forms of existence are essential to each other. It can be asserted that the interaction between them is the condition for their operation on the different levels of two temporalities.

How proximate do the raw and organised timbres become in the process of interaction? They may become infinitely close, but one suspects that the two forms of existence can never be the same. The raw-timbre will always fail to realise the structure, and the organised timbre will always fail to capture the actuality. Nevertheless, such failures are the proof of successful interaction, for the failure validates the operations on the different levels and makes it felt that the 'inside' and 'outside' temporalities are co-existing. Indeed, there would be no expression in music if there was no tension between the two temporalities.

The question of organising a relationship between the timbre in lived temporal space and the timbre in musical space anticipates a complex answer. Their levels of organisation may take on some laws of variation to allow infinite possibilities of interaction between the two modes of timbre in a given musical context.[22] What is relevant to the present discussion is the different modes of behaviour which the musical timbre displays in different temporal spaces. Questions that refer to its practice need to be asked: how does a raw-timbre approach the realisation of a musical form? In the practice of Western music, what methods have been employed to embody organised-timbre in musical events over the centuries?

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[22] See the section 'The importance of Context' in Jean-Claude Risset and David L. Wessel, 'Exploration of Timbre by Analysis and Synthesis', op. cit. In this section they observe the ways in which fundamental elements are rearranged to form musical phrases, and consider the possibilities of relating logically the effects of these variations with the spectral modelling in composition.

Raw-timbre and the role of performer in musical practice

Early operatic works (those written before the eighteenth century) generally did not have a precise indication of which instruments were to be employed.[23] Although here the issue of timbre involves more than just the individual sonorities, this ambiguity of instrumentation acutely points to the question of timbre and its function in music amidst the prevalent notion of 'faithfulness to the work' which assumes that every composition contains ideas for appropriate renditions within itself.

The instrumentation of many musical works in the early Baroque era depended more heavily on the economic considerations of the person hosting their performance than on the composer's ideas about timbre.[24] When we see the score of a musical composition from this period it may contain only voice parts and bass.[25] However, it can be argued that the composer had expressed what needed to be expressed on the score: he had written his *definition* of the work. From this we can deduce that the role of instrumentation was somewhat secondary in the minds of these composers.

> . . . The same work could be performed at one court by a large orchestra which clothed it in magnificent sounds, while at a different location it was staged with only the most essential accompaniment. The critical point was that the changes [of instrumentation] could only affect the sound quality, the musical garment. It could not represent a serious alteration of the composition as such, but might amount to a richly varied execution of the basso continuo. The work is therefore complete, even in the simplest realisation. Works notated in this way could thus be played in a minimalist version with one harpsichord and four strings, but they could also be adapted to meet all requirements and conditions, this being one of the tasks of the respective maestro.[26]

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[23] Nigel Fortune gives a history of varied performances of Monteverdi's *Orfeo* in the 20th century, showing a wide variety of orchestration employed for the work as a result of the unspecific nature of the work's written orchestration. Nigel Fortune, 'The Rediscovery of *Orfeo*', *Claudio Monteverdi: Orfeo* (Cambridge Opera Handbooks), edited by J. Whenham, Cambridge University Press, Cambridge, 1986, pp. 78-118.

[24] See, for example, Tim Carter, 'The North Italian Courts', *The Early Baroque Era* (Man and Music Series; Vol. 3), edited by C. Price, Macmillan Press, Basingstoke, 1993, pp. 23-48.

[25] Clifford Bartlett observes that in *Orfeo*, Monteverdi could call on the full resources of the Mantuan court but by the time he composed *l'Incoronazione di Poppea*, opera had changed: the audience came to hear the solo singers and other costs were kept to a minimum. As a consequence, *Poppea*'s scoring is very sparse, representing a typical manner of instrumentation during this period. Clifford Bartlett, CD sleeve notes for *l'Incoronazione di Poppea*, Virgin Classics, London, 1990, pp. 16.

[26] Nikolaus Harnoncourt, *Der musikalische Dialog*, Residenz Verlag, Salzburg, 1984; *The Musical Dialogue*, translated by M. O'Neill, Amadeus Press, Portland, 1989, p. 34.

The choice of sound quality is therefore left as a matter not controllable by the composer. This leads us to deduce that, in the case of early musical practice, the matter of appropriate instrumentation is first determined by questions of economy and, after that, left to the performing musicians to decide. This is to say that the composition of appropriate timbre had to be approached from *outside* the work, in that the performing musicians give free rein to their imagination in conceiving what may, more often by accident than by deliberation, become appropriate in practice.[27]

Although the separation of the question of suitable timbre from the composition itself is standard practice in early music, the performer (of then and now) is bound to be confronted with the fundamental questions: how can a musical composition be most appropriately executed within the given means? is there any notion of 'appropriateness' which can be applied regarding the sound required in any specific part of the score?

In fact, instrumentation is not confined to the question of 'what instrument'; it also concerns what sound the performer produces on that instrument. To learn about the timbre of any musical instrument is an empirical experience. We can learn the physical properties through instinct as well as scientific information. However, any instrument has its own characteristic nature. A master of an instrument (here it does not have to be a musical one – it can be a tool for a craft) is someone who knows what the instrument *is*, and how it can be employed for the service of expression. There are two kinds of knowledge: one is that we know what the

[27] This does not, however, suggest that the contemporaneous musicians were unfortunate or careless in any sense. This is merely one of the multifarious ways in which their ingenuous creativity flourished while absorbing diverse elements. Umberto Eco attributes such tendencies towards referential thinking to the legacy of Mediaeval culture where 'there was a certain weakness in their capacity to differentiate among things, a tendency in their concepts to include not just the things of which they were concepts, but also things similar or related to them. . . . it was a prolongation of the mythopoeic dimension of the Classical period, though elaborated in terms of the new images and values of the Christian ethos' (p. 53). Medievals preferred symbolical interpretation, taking things as signs. This is to say things were understood more anagogically than logically, but 'interpreting poetry allegorically did not mean imposing upon it some kind of arid and artificial system. It meant seeking in it what was felt to be the highest possible pleasure, the pleasure of a revelation *per speculum in aenigmate*. They responded not just to its lyricism but also to its symbolical values. It was always an object for the intellect' (pp. 60-61). Eco also points out the fact that 'every age has its own poetic sensibility, and it would be wrong to use the modern sensibility as a basis for passing judgment upon the Medievals' (p. 61). Early music gives just such examples where the sensibility and concept about timbre and work were quite different from the contemporary view. Umberto Eco, 'Sviluppo dell'estetica medievale', *Mementi e problemi di storia dell'estetica*, vol. 1, 1959; *Art and Beauty in the Middle Ages*, translated by H. Bredin, Yale University Press, New Haven, 1986.

instrument can do, the other is that we know what the instrument is *disposed* to do.[28] The knowledge of timbre is as much in the ability to manipulate the dimensions within the timbre, as in the admission of and respect towards the indefinable mass movement of energy from within the instrument.

It can be argued that the challenge that performing musicians of early music inevitably meet is to gain this knowledge about instruments in order to take on the responsibility of rendition, as the possession of this knowledge was precisely within the intention of the composers in that period by the default of economic considerations. Ornamentation and improvisation should follow and express the instrument's predisposition, as much as it should complement the structural significance of the work. An appropriate interpretation in early music requires a correspondence between the nucleus of expressivity of an instrumentation and that of the musical work.

Decisions about instrumentation being left to the skills of a performing musician also emphasises the fact that timbre may have an autonomy of expression outside the musical work, and suggests the possibility that a musical composition may be exploited for the purpose of such expression. The idea of composing for a 'virtuoso' comes from this. Virtuosity is not only the technical mastery over an instrument but also, and more importantly, a captivation of the instrumental energy and the acoustic characteristics by the performer/composer. Consequently this way of closing the distance between the composer and performer brings up the issue of

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[28] Martin Heidegger illustrates this with the example of using a hammer: 'The process of hammering does not simply have knowledge about the hammer's character as a tool, but it has appropriated this tool in a way which could not possibly be more suitable. In dealings such as this, where something is put to use, our concern subordinates itself to the "in-order-to" which is constitutive for the tool we are employing at the time. The less we just stare at the hammer-Thing, and the more we seize hold of it and use it, the more primordial does our relationship to it become, and the more unveiledly is it encountered as that which it is - as tool . . . . No matter how sharply we just *look* at the "outward appearance" of Things, in whatever form this appearance takes, we cannot discover anything ready-to-hand. If we look at Things just "theoretically," we can get along without understanding readiness-to-hand. But when we deal with them by using them and manipulating them, this activity is not a blind one. It has its own kind of sight, by which our manipulation is guided and from which it acquires its own Thingly character.' George Steiner elaborates Heidegger's point as: 'Appropriate use, performance, manual action *possess their own kind of sight*.. Heidegger names it "circumspection." Any artist, any craftsman, any sportsman wielding the instruments of his passion will know exactly what Heidegger means and will know how often the trained hand "sees" quicker and more delicately than eye and brain. Theoretical vision, on the other hand, looks at or upon things noncircumspectively: "It constructs a canon for itself in the form of *method*." This is the way of the physicist "looking" at atomic particles. Here methodological abstraction replaces the immediate authority of "readiness-to-hand." Heidegger's differentiation is not only eloquent in itself; it brilliantly inverts the Platonic order of values which sets the theoretical contemplator high above the artist, the craftsman, the manual worker.' Martin Heidegger, *Sein und Zeit*, 1927; seventh edition, Max Niemeyer Verlag, 1957, p. 69; *Being and Time*, translated by J. Macquarrie and E. Robinson, Blackwell, Oxford, 1962, p. 98. George Steiner, *Heidegger*, second edition, Fontana Press, London, 1992, p. 90. The above translation of the Heidegger passage (used here for its clarity of language) also comes from this text, pp. 89-90.

'how musical' the expressivity of an instrument and a particular timbre can be in a composition. For example, the borderlines between a musical instrument and a mere 'tool' that causes sound, and between an ornamentation and an 'exhibitionism' are never clearly definable. However, the relationship between the inside and outside of a musical work suggests that the musicality of a timbral employment depends on the degree of integration of the elements that are *inside* the musical composition, the features of musically organised structures, and how this integration inspires our imagination.

Raw-timbre becomes music by approximation, and the process should be carefully handled by the performer. This task is of great importance even when information such as the instrumentation, dynamic or specific effect is given. Although a musical structure can be imposed upon raw-timbre, the process of realising a cohesion between the two is that of merging by experiment. The two are ideologically opposite, but in practice we observe them simply as two different things. It is a matter of vigilance on the part of the performer in every instance to experiment and create a cohesion between the two, since methodising runs the risk of fixing the quality of raw-timbre and often fails to recognise its essential quality. The empirical nature of this approximation may explain why the principle concerns of performance practice so often tend towards the basic fundamentals of playing. They serve to keep the physical and instinctive sense in order, so that the process of expressive cohesion between instrument and music can be achieved naturally through a discipline which does not necessarily acquire intellectualisation. However, there are certainly risks in leaving to the performer, the *outsider*, the task of moulding an appropriate timbre and execution of a musical work. The lack of definitive methods in the realisation of the musical work increases the risk, as does the lack of ability on the part of the performer to find appropriate means of expression.

Historically, the practice of early music changed during the eighteenth century when the notion of more exact notation was introduced. The introduction of this new notational practice has since abandoned the old principle of the autonomous, creative interpreter as performer and changed the relationship between

'work' and 'performance'.[29] Accordingly timbre has become a commodity of the composer, the only person who correctly understands the links between instruments and musical expression. The composer rightly claims the artistic advantage of his control over this dimension, since it is mainly the imagination of the creator that can fully envisage and give form to what timbre *is*.

> The essential concern of true art [meaning musical composition] is to imitate nature and, where necessary, to assist nature. If nature imitates art, then that which is natural must indisputably shine forth everywhere among works of art. Consequently, it is impossible for art to remove the natural aspect from those things in which it imitates nature, and this holds for music as well. If art assists nature, then its intention is solely directed at preserving it, indeed, improving it, but not destroying it. Many things are extremely malformed in nature, but receive the most beautiful appearance once they are shaped by art. Art thus bestows on nature the beauty it lacks and enhances the beauty it possesses. The greater the art, the more diligently and carefully it works to improve nature, the more perfectly the beauty it has created will shine forth. Consequently, it is impossible for the greatest art to obscure the beauty of an object.[30]

Here the composer is given a special privilege that no other discipline within the musical communication can have: namely, only the composer 'bestows on nature the beauty it lacks and enhances the beauty it possesses'. The musical significance of timbre resides in its imaginative manipulation rather than in its physical property.[31]

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[29] The emergence of more exact notation mirrors the changes through which social conditions surrounding musical culture transformed themselves during the 18th century. Lydia Goehr's claim that the 'work-concept' was established around the same time (she attributes this to around 1800) points to the magnitude of this movement and its influence on the course of music history (Lydia Goehr, *Imaginary Museum of Musical Works*, Oxford University Press, oxford, 1992). In critiquing Goehr's book, Harry White discusses further the cases of Johann Joseph Fux and Johann Sebastian Bach in which 'the inherent complexity and structurally normative condition of the music exemplify the static conception of "fine art"' (p. 98) and suggests that, although the early eighteenth century musicians did not have the socially autonomous status as the nineteenth century musician did, the inherent status of the music was present in the eighteenth century (what White calls an 'authority-concept': Harry White, 'If It's Baroque, Don't Fix It': Reflections on Lydia Goehr's Work-Concept' and the Historical Integrity of Musical Composition', *Acta Musicologica*, Bärenreiter, Basle, Vol. 69, issue 1, 1997, pp. 94-104). Accordingly, White's examples of Fux and Bach also offer fascinating cases for performance practice.

[30] Letter written by Johann Abraham Birnbaum in defence of J. S. Bach in an debate on exact notation in 1738, cited in Nikolaus Harnoncourt, *The Musical Dialogue*, op. cit., p. 41. The debate took place after a public controversy involving a disfranchise of discontented musicians. The idea of nature's possessing hidden beauty is an old one: Hugh of St. Victor commented that 'visible beauty is an image of invisible beauty' (cited in Eco, *Art and Beauty in the Middle Ages*, op. cit., p. 58). Birnbaum's interpretation of Transcendental Beauty is, however, different from the medieval in terms of attitude with which human effort can transform nature into beauty rather than with which human effort can relate beauty with nature.

[31] This shift of timbral significance into an abstract realm of manipulation also marks the beginning of Romantic Transcendentalism where musical expression itself changes its nature. See for example Carl Dahlhaus, 'Changing Phases of the Esthetics of Emotion', *Musikästhetik*, Musik Verlag Hans Gerig, Köln, 1967; *Esthetics of Music*, translated by W. W. Austin, Cambridge University Press, Cambridge, 1982, pp. 16-24.

It is arguable, from this time onwards, whether the significance of raw-timbre had not declined in its potential for and connection with musical expression, and whether the skills of performing musicians had not become shallower and narrower. The given priority of imaginatively manipulated timbre over raw-timbre seems to have divorced the concerns of the latter from those of musical expression except in occasional instances where raw-timbre is dealt with as a peripheral addition to the musical discourse.

However, this does not mean the waning of the existence of raw-timbre in music. It is only that we have become accustomed to having the gap between the inside and outside, the dual modes of timbres.

2. Timbre as cultural product

The influences of society and social 'ideas'

> That there are connections between 'what the mind is doing on one level, and what the mind is doing on another level' is not difficult to illustrate on a *prima facie* basis where music is concerned. Is it a complete coincidence, for example, that functional tonality arose from the fervour of an intellectual and artistic movement (the Renaissance) which arguably laid the foundations for modern capitalist society? Is it a complete coincidence that alternatives to that musical 'language' began to develop at a time when the 'reality' of three-dimensional perspective in painting was under attack, and when classical physics was facing a very considerable crisis? Is it completely without foundation that many people have seen in the rise of the Afro-American-influenced popular musics of this century social implications of great importance?[32]

It can be said that music is inseparable from reality because of the way in which it is experienced. We perceive a musical event through our cognitive faculty, but the way we perceive it depends on the factors that form the basis of our cognition. One can hardly assume that these factors are only physical limitations of the auditory system. Shepherd argues that these factors are also derived from the social environment in which we live; they form a framework of experience.[33]

The concept of timbre likewise lies in the links between the acoustic object and some essentially non-intrinsic, preconditioned state. These relationships seem to grow in their complexity and specificity as history proceeds. In the music of the nineteenth century certain timbres had a prominent role in acting as sign-posts for the emotions. This specification of the relationship kept growing continually to the extent where the 'language' of music became established, where certain intervallic sequences came to 'denote' certain emotional states.[34] This accumulation of cognitive sets raises a question about the effects of time on the relationship between musical language and society, as the latter perpetually changes in time while the former is more resilient to changes.

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[32] John Shepherd, *Music as Social Text*, Polity Press, Cambridge, 1991, p. 11.

[33] He devotes the second half of *Music as Social Text* for analyses of varied musics and musical dimensions to demonstrate this.

[34] The earlier quotation of Berlioz is an instance of the first case and the second case is best exemplified in Deryck Cooke, *The Language of Music*, Oxford University Press, London, 1959.

> Musical processes tend to be conceived as absolute, permanent, and discoverable beyond the vagaries of human thought and perception because such an approach aids mystification and so role security. To ignore the social nature of music is to articulate the predominant modes of thought and social organization of industrial societies. . . . Given the characteristics of the dominant world sense of industrial societies and their associated social structures, there can be little doubt that these [aesthetic and political] problems have been intransigent. Because of its characteristics as a social medium *in sound*, music, more than most other phenomena, has highlighted the assumptions and deficiencies of our social organization and our traditional outlook on the world.[35]

The necessity of the association of music with the outside world of established culture stems from the necessary involvement of these social (musically extraneous) factors from the initial conception of and throughout the process of musical discourse.

The history of the violin around the turn of the nineteenth century demonstrates that these factors come in various levels and formulate a new set of features for the violin as a musical instrument.[36] At the end of the eighteenth century the leadership in violin making passed gradually from the Italians to the French. These changes were occasioned by the great social changes accompanying the French Revolution and related events. After the old system of royal and aristocratic patronage collapsed in the wake of the Revolution, it was replaced gradually by middle-class support of musical life, including the commercial concert with its inevitable emergence of the travelling-virtuoso such as Paganini or Spohr, 'stars' who dazzled and attracted the public and charged fees of corresponding magnitude. These concerts and their soloists had to be supported by an audience large enough to pay the bills. The natural result was the advent of larger halls and correspondingly larger orchestras and more powerful solo instruments. Consequently the violin was remodelled in certain respects to respond to demands for greater power and brilliance, and renewed the potential value of the instrument. Another feature of the French Revolution was its concern with public instruction to encourage and

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[35] John Shepherd, *Music as Social Text*, op. cit., p. 73.

[36] For detailed accounts of the development in performance practice, see, for example, Robin Stowell, *Violin Technique and Performance Practice in the Late Eighteenth and Early Nineteenth Centuries*, Cambridge University Press, Cambridge, 1985, pp. 2-3; the technical development in the instrumental construction is well documented in Walter Kolneder, *The Amadeus Book of the* Violin, translated and edited by R. G. Pauly, Amadeus Press, Portland, 1993, pp. 193-205.

standardise technical and musical training. The Revolutionary government commissioned books of instruction for violinists.[37] The products of this movement have largely defined what we know about the instrument today.

If we accept that music is inseparable from the reality of society and that people's thought processes are socially mediated, then we could say that the basic qualities of different timbres are likewise socially mediated and thus socially significant, because of timbre's position as the grain of existence in musical communication. In other words, the influence of society on the concept of timbre corresponds to the capacity of the society to formulate ideas for that concept.

However, among the influences of social ideologies we can see a particular trait in the relationship between music and society. All our debates about music share the same starting point: an inquiry takes place when we find that the perception of a given work or state of music is not in the form we thought or think it should be. Despite all the conceivable merits, the fact remains that debates and ideological ideas are fictional notions: a treatise on 'the Art of Violin Playing' is not a performance practice itself and an analysis is not a reproduction of the work in question. These intellectual efforts are produced because the contemporaneous practice presents the experience in a form that is arguably not intended: these efforts offer us some possible imaginary alternative forms of the experience, and, through their power of argument, eventually influence the practice. In this way the intellectual ideas create abstract forms comprising definitive metaphysical property, *simulations* of the experience. These are substitutes for reality as we imagine it might also exist. The reactions to these simulations are, despite their particular concreteness, unpredictable; the possible response of musical reality to such ideas is infinitely more varied than we predict. Its sensibility towards the ideas/simulations operates in a vast area, far beyond our understanding of musical reality and our most apparent behaviour towards it.

I suggest that it is the involvement of an empirical being that opens up this area of unknown sensibility and that confirms its omnipresence in the reality of music. It is the very interference of varied individuals, such as we are, that causes the simulations of music to become products with diverse results. Such refractory

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[37] Some of their publications are still being consulted in present day training. To name a few, of the most notable examples, these are: P. Gaviniès, *Les vingt-quatre matinées*, Paris, c. 1800; P. Baillot, P. Rode and R. Kreutzer, *Méthode de violon*, Paris, 1803; P. Baillot, *L'art du violon: nouvelle méthode*, Paris, 1834.

interference of individuals in the reality that holds the whole package of ideas and social ideologies produces the murky notion of tradition which penetrates all musical practice. In this way when people create, perform, and listen to music, they are reproducing (within the bounds of their technical ability) the basic qualities of their own thought processes in the basic qualities of their music, the latter of the two more heavily filtered by the practice of tradition.

The fabric of tradition

What constitutes the concept of timbre in the minds of composers? Most likely, what determines it is their past and present experience of the material they employ. Instrumentation is seldom learned by a systematic study of timbre but by picking out examples or choosing existing models. We can observe that this method has been working extremely well for centuries. Although recent technological developments have enabled us to approach timbre more objectively, the import of the concept and the link between timbre and composition has largely remained subjective to the present day. This suggests that timbre as the product of the history of a particular society stimulates the very motor of creativity in the composer and consequently has become firmly established as a standard practice in composition. The tradition is the legacy of practised ideas in society and the linearity of thought prompts the creation of further new ideas.

What then is the gap between ideas and tradition? The attitude in the classical musical tradition is markedly conservative in comparison to other musical traditions or even to other arts. The gap resides in the way in which music is related to society and society to ideas.

Sound is evanescent and can only exist as it is going out of existence. It is never static and can only be considered sequential by the application of discontinuous analytical thought and memory to its existence. Sight, on the other hand, can generally speaking be more easily isolated in its effect, and can be examined without destroying the inherent quality of the experience.

> Auditory space has no point of favoured focus. It's a sphere without fixed boundaries, space made by the thing itself, not space containing the thing. It is not pictorial space, boxed in, but dynamic, always in flux, creating its own dimensions moment by moment. It has no fixed boundaries; it is indifferent to background. The eye focuses, pinpoints, abstracts,

> locating each object in physical space, against a background; the ear however, favours sound from any direction.[38]

Auditory space has a unique property which is different from the spaces of other senses – sound is more symptomatic of the flow of time. Although other sensory phenomena also happen within a stream of time, they can generally be isolated and examined at leisure and are not so inexorably tied to that stream. In music this stream impoverishes our capacity for visualising structure and linear referencing within the space and reduces the quality of abstract formation of our aural experience. Therefore we most easily understand what is cast in fixed formulatory patterns, and this provides the very foundation for conservatism. There are people who do not like the abstract because, beyond the limited means of control, it challenges the tenuousness of their hold on rationality.[39] What is abstract is dangerous because it is slippery and unmanageable.

However, this does not mean that 'tradition' does not change itself. Society provides a framework for such tradition but the same society also holds ideas. We are not conscious of changes being made, due to the mediation of experience which renders changes continual and gradual rather than infrequent and radical. What seems to be missing is our awareness of the necessity for change in the unconsciously formulated space of musical tradition – that it is still in the process of transformation. If musical tradition is defined as the legacy of what has been practised (rather than thought) in society, this suggests that tradition develops through incorporating new ideas in a cyclic form, that new ideas are simulated as imaginary *extensions* of tradition and that tradition reforms itself by practising the new ideas. Correspondences between the old and the new, tradition and ideas, mostly occur as chronologically differentiated entities. Within each period correspondences maintain a closely interlinked influence on the disciplines of composition, performance and perception: the timeliness of changes has far greater influence over the course of development of tradition than the actual changes *per se* in an individual discipline. It is because changes take place only where they are

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[38] E. Carpenter and M. McLuhan, 'Acoustic Space', *Explorations in Communication*, edited by E. Carpenter and M. McLuhan, Jonathan Cape, London, 1970, p. 67; cited in John Shepherd, *Music as Social Text*, op. cit., p. 20

[39] There is a link between the space of these auditory patterns and that of mythology. Both operate in a sphere whose temporal structure is devoid of 'background', without a reference to the outside world. See for example Chapter Eleven 'The Structural Study of Myth' in Claude Lévi-Strauss, *Structural Anthropology*, translated by C. Jacobson and B. Grundfest Schoepf, Penguin, Harmondsworth, 1968, pp. 206-231.

applicable and thus some areas remain unaffected, that no area can escape the temporal consequence of being part of the ontological entity as musical discourse.

Nevertheless, the introduction of new ideas at the beginning of the century into the stylistic tradition of Romanticism took an exceptional course. Here the initiative was taken by composition which in turn was stimulated by industrialisation and the general 'renewal' of the concepts of art as found in other fine arts of the time. These ideas have not, to this day, entirely merged into the fabric of tradition.[40] Indeed the main constituents of the fabric of Western classical music remain those of the nineteenth century. The ideas of Modernism have since then created their own tradition which incorporates further new ideas up to the present day, alongside the continuity of the nineteenth century tradition. We now have two traditions. The problems and consequences of this duality continue to be an issue in music, and it is worth examining the dichotomy at its root.

There are two main factors: one is the nature of Modernist thought and the other is the capacity of music to assimilate it. The features of Modernism are shared by all arts because their shared properties are the abstract thought processes of society. The 1919 proclamation of the Weimar Bauhaus shows this pointedly:

> Let us create a new guild of craftsmen, without the class distinctions which raise an arrogant barrier between craftsman and artist. Together let us conceive and create the new building of the future, which will embrace architecture and sculpture and painting in one unity and which will rise one day toward heaven from the hands of a million workers like the crystal symbol of a new faith.[41]

This radical reworking of the *Gesamtkunstwerk* concept is based on a particular view of society, and its ideas are designed to be applicable to all the arts. It requests a distancing from the present reality, a linking between a more intense consciousness of self as social individual and an objectifying of self. Through the provision of objectifying ourselves, we may become more aware of our own individual

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[40] Nicholas Cook suggests that the problems of acceptance for new music are 'not in the music itself, but in ways of thinking about it'. He cites examples of modern music in cinema or those commercially packaged as a largely profitable product (such as Górecki's Third Symphony). However, it has to be said that these popularized forms of presenting modern music have not so far seriously contributed towards a synthesis between the music and the ways people really think about it: the popularized forms of presentation often heavily rely on the power of other expressive apparatae such as visual images (in the case of cinema) and media exposure (in the case of commercial advertising). Nicholas Cook, *A very short Introduction to* Music, Oxford University Press, Oxford, 1998, pp. 45-50.

[41] Kenneth Frampton, *Modern Architecture*, third edition, Thames and Hudson, London, 1992, p. 123.

consciousness and of our position in society. It is a conceptual process of stepping outside ourselves and vacating our central position in the universe. This is similar to the historical perspective that is made possible by literacy; it has brought a specific mode of thinking with a 'straight-line' sense of time.

> In our culture, the line is so basic that we take it for granted, as given in reality. We see it in visible nature, between material points, and we see it between metaphorical points such as days or acts. It underlies not only our thinking, but also our aesthetic apprehension of the given; it is basic to the emotional climax, which has so much value for us, and, in fact to the meaning of life itself. In our thinking about personality and character, we have assumed the line as axiomatic.[42]

The linearity of the abstract process, the abstract space of our experience, presupposes one condition: time is within our ability to grasp events; through our sense of the past, our imagination can stop the events of time in our ongoing flow and, in effect, stop 'lived-time'. The abstract process that Modernism inspires is in the context of a developed tendency to examine time from the outside, similar to the way in which the modern society examines other objects such as individuals and the universe.

However, as it has been pointed out earlier, in music we (as the listeners) recoil from abstract formations because they challenge our hold on rationality. Despite the development of the mental process, we still maintain the *significance* of music in the physical experience of it, as opposed to the mental experience.[43] Although it is arguable what form this significance takes in our musical experience, the developed sense of distinction between the mental and physical spheres is not the fundamental condition. Susanne Langer remarks that musical significance has a low rational priority, in that the significance of music lies in the experience itself rather than in its ability to represent musical ideas.

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[42] Dorothy Lee, 'Lineal and Non-Lineal Codifications of Reality', *Explorations in Communication*, p. 142.

[43] Nicholas Cook in his *Music, Imagination and Culture* discusses the possibilities of where musical significance lies in our experience of music: 'To think that one can understand music in some abstract, symbolical sense that can be separated from such aesthetic participation is simply to misunderstand the whole nature of the enterprise. And this means that the very concept of 'really understanding' music becomes vacuous; there is only reading it, memorizing it , performing it, composing it, and listening to it - in short, loving it. Such at least is the testimony of Artur Rubinstein, according to whom ' "understand" is a word one shouldn't apply to music; there's nothing to be *understood* - for me, music must be felt.' Igor Stravinsky used almost the same words when he remarked, 'I haven't understood a bar of music in my life; but I have felt it.'' *Music, Imagination and Culture*, Oxford University Press, London, 1990, p. 186.

> Music is a limited idiom, like an artificial language, only even less successful; *for music at its highest, though clearly a symbolic form, is an unconsummated symbol.* Articulation is its life, but not assertion; expressiveness, not expression. The actual function of meaning, which calls for permanent contents, is not fulfilled.[44]

Modernism manifests a quality that acutely opposes the mental/physical ambiguity of musical communication and challenges the core of what formulates tradition. The concept of timbre has typically exercised the dichotomy between tradition and ideas in the twentieth century, more prominently so because of its lack of rational expression, not being subjected to an explicit mechanism of musical notation beyond mere instrumentation.

Views on historicity

Modern music has thus developed in parallel with the conservation of the historical legacy. The gap between them has become institutionalised, and is no longer something likely to be reconciled. However, this dualism can be seen as an enriching experience within musical discourse. The distance between the traditional and the new has opened a dimension that expands and challenges the margins of significance in music.

Neo-classicism illustrates one of the technical approaches in exploring this dualism. In the compositions of some composers from circa 1930, such as those of Stravinsky for example, the classical, balanced forms are often employed in order to articulate musical ideas otherwise foreign to them, so that the form or material appears to be burrowed into the new idiom, or to replace the content that used to be associated with a given form or material. This conscious manipulation of historicity is a new interpretation of the tradition that keeps the temporal linearity of Western musical discourse alive. The condition of this interpretation is that music is an autonomous art and can be complete in the imaginary abstract state. The new interpretation reduces tradition to the level of abstraction. Its primal impetus comes from the objectification of tradition. This goes *against* the tradition of music as physical experience, because it allows the significance of tradition to be perceived

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[44] Susanne K. Langer, *Philosophy in a New Key*, Harvard University Press, Cambridge, 1942, p. 240.

only in the context of abstract form. Tradition, the past, is an object of sceptical investigation by means of which new aesthetics are created. Stravinsky expresses this attitude in his opinion on why the past is irretrievably past and does not hold any 'certitude' in the *present*:

> The past slips from our grasp. It leaves us only scattered things. The bond that united them eludes us. Our imagination usually fills in the void by making use of preconceived theories. . . . Archaeology, then, does not supply us with certitudes, but rather with vague hypotheses. And in the shade of these hypotheses some artists are content to dream, considering them less as scientific facts than as sources of inspiration. . . . Such a tendency in itself calls for neither praise nor censure. Let us merely note that these imaginary voyages supply us with nothing exact and do not make us better acquainted with music. . . . What shall we say about ancient music, and how could we judge it with the instrument of our reasoning mind alone? For here instinct fails us. We lack an indispensable element of investigation: namely, the sensation of the music itself. My own experience has long convinced me that any historical fact, recent or distant, may well be utilised as a stimulus to set the creative faculty in motion, but never as an aid for clearing up difficulties.[45]

Stravinsky carried out his experimentation largely on the concept of structure, a dimension where the abstract quality had always been more prominently shown than in other dimensions.

Here it is necessary to go back to Schoenberg's statement on the possibility of structuring timbre. Schoenberg may have wished to operate a similar kind of structuring with timbre, in which the existing tradition is given a space where it can be transformed back to ideas and given to restructuring. Although musical timbre did go through a period of experiment by composers such as Webern and Varèse, its strongly experiential (rather than abstract) nature stood as a barrier for a long time because it was inseparable from the bondage musical timbre has with social reality. It was technology that opened up the space of virtual reality to it. The post-war electronic music can be credited with having inspired the imagination of musicians and having led to the possibility of structuring timbre through the perspective of historicity.

As a consequence of this increasing space of timbral operation, the notion of extended instrumental technique emerged, introducing a new concept of beauty as

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[45] Igor Stravinsky, *Poetics of Music*, translated by A. Knodel and I. Dahl, Knopf and Random House, New York, 1960, pp. 26-27.

the rejection of habits. This rejection provides a particular space for the restructuring of timbre: because timbre is inextricably linked to our experience (since culture is the only environment in which we identify timbre), the restructuring of timbre brings about reconstitution not only in the musical discourse but also reconstruction in the musical experience as a social reality. The development from Stravinsky through post-war musicians to the present day has reached the point at which timbre introduces 'radicalism' on social levels.

> . . . a study of works from the classical period of serialism, such as "Il Canto Sospeso" or "Incontri" by Luigi Nono, "Structures" or "Marteau" by Boulez, "Gruppen" or "Kontrapunkte" by Stockhausen, reveals that the "compelling quality" of this music is not just derived from the virtuous consistency with which the self-imposed rules are adhered ... but also at least as much from the wisdom with which the music ... [expresses] a *reaction* to existing social structures and existing communicative rules of the bourgeois aesthetic apparatus ... and offers them resistance – not just rhetorical but actual – putting their normal functioning out of action, indeed sometimes even destroying it.[46]

If we define one of the characteristics of twentieth century musical discourse to be discontinuity of thought, it is due to the ever increased space of abstract manipulation that allows the human mind to dissociate itself from tradition. The wider space of abstract manipulation has enabled us to challenge our mental capacity to structure, and in the more physical dimensions such as timbre, it has provided a new area of aesthetic experience as a social phenomenon. The temporal segmentation of the past, present, and future is constantly on the verge of losing significance, but timbre provides the link that connects the mental manipulation of musical sound and our experience of it. Timbre should offer us broader scope where abstract ideas are indirectly but positively connected to our perception, and therefore enrich our musical experience.

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[46] Helmut Lachenmann, 'On Structuralism' in *Contemporary Music Review*, Vol.12, Part 1, Harwood Academic Publishers, Chur, 1995, p. 97.

II. Timbre and composition: the idea of semiology in musical discourse

The work of art and its varied representations

> O chestnut-tree, great-rooted blossomer,
> Are you the leaf, the blossom or the bole?
> O body swayed to music, O brightening glance,
> How can we know the dancer from the dance?[47]

In discussing this poem by Yeats, de Man shows that there are two kinds of reading, literal and figurative, and explains how 'the essentially different elements, sign and meaning, are so intricately intertwined'. In the last line of the poem the rhetorical meaning suggests that the dancer and the dance are the same thing. However, the literal meaning denotes explicitly that the dancer and the dance are not the same. De Man argues that in order to grasp the dynamic quality of this structure, 'the two readings have to engage each other in direct confrontation, for the one reading is precisely the error denounced by the other and has to be undone by it'. The dialectical structure is articulated by the axis between grammar and rhetoric. Words provide a wide scope of interplay between the two elements, sign and meaning.

The significance of Yeats's last line is twofold. It offers the opposition between the grammatical and rhetorical within the linguistic dimension, and the opposition between the represented subject (dance) and its representation (dancer) within the ontological dimension.[48] The first opposition reveals the dialectic

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[47] From William Butler Yeats, *Among School Children*, quoted in Paul de Man, *Allegories of Reading*, Yale University Press, New Haven, 1979, p. 11. The following two quotations in the paragraph are from the same source.

[48] The first opposition between the grammatical and rhetorical within the linguistic dimension can be further analysed by using linguistic models, most notably those by Noam Chomsky. However, it can be seen that de Man's argument goes beyond semiotic specifications an linguistic analysis offers; he articulates the power of the *unspecified* meaning found between the second oppositions (between the represented subject and its representation) within the ontological dimension of the subject matter. It is particularly this level of expressive structuring that has a relevance to the present discussion. Incidentally, Chomsky himself challenges this area of unspecified meaning in a constructive manner which is immensely effective in analysing perhaps more projective – and less subversive constructions of artistic expression. See his discussion on the 'Problems and Mysteries in the Study of Human Language', *Reflections on Language*, Fontana/Collins, Glasgow, 1976, p. 137-227.

structure of such a poem as de Man demonstrates, and this invites the second opposition to be examined for whether such a work has another type of structure that results in producing varied representations. A change in the outward appearance of a work may be more than the consequence of its merely being affected by the context in which it happens. It raises, in short, the question of the content and framework of art.

This leads us to consider, first of all, the relationship between all possible manifestations of a work. We can tell the difference between the dances presented by two different dancers, because of two different personalities. However, when somebody dances the dance, how can we tell if there is a difference between 'the dance' as an abstract idea and this dancer's dance? Can we ever understand the dance without the dancer, the dancer without the dance? Is there a level where an 'absolute' dance can be identified?

We may assume that multiplicity of reading is an indication of the plurality contained in the ontological structure of a work, and that multiplicity of representation is an indication of the plurality that is a result of the work's perception. However, it is not unlikely that between the two groups of multiplicity a correspondence may exist in the ways in which a work of art expresses ideas.[49] De Man's formal approach explains multiple possibilities of reading and meaning in which a poem exists, whilst the singularity of writing is all the more illuminated; our experience tells us that, when seeing different performances of a dance for example, we recognise the work and identify it as a single work. There is a temptation to link these two facts and draw a generalised theory that can be applied to all arts.

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[49] Issues related to the relationship between text and reader are well discussed in literary studies. During the 1960s some scholars raised these issues instead of those concerning the relationship between the author and the work - which had been the centre of literary scholarship until then. The shift of focus in criticism has since then instigated a number of reception theories. Hans Robert Jauss and Wolfgang Iser, both major proponents of reception theory, consider reception to be determined largely by general cultural factors, although the approach is different between them: Jauss emphasises the historical nature of literature, literary historicism, on the one hand, while Iser concerns himself on the other hand primarily with the individual text and how readers relate themselves to it. Today literary criticism offers a vast amount of material discussing the nature of the act of reading, and with a presentation of various models for understanding works of art. Whilst de Man presents models from a deconstructive position, Jonathan Culler suggests a structuralist view in which competence and conventions have a significantly important role in reading and understanding. Hans Robert Jauss, *Aesthetische Erfahrung und literarische Hermeneutik*, Fink, München, 1977; *Aesthetic Experience and Literary Hermeneutics*, translated by M. Shaw, University of Minnesota Press, Minneapolis, 1982; Wolfgang Iser, *The Act of Reading: A Theory of Aesthetic Response*, Johns Hopkins University Press, Baltimore, 1978; Jonathan Culler, *Structuralist Poetics*, Routledge and Kegan Paul, London, 1975, to name only a few representative works.

However, we cannot impose the analytical technique of literature on any other art medium, since the expressive structure of one art is distinct from that of another art.

In music, we cannot rely on the stability of signification of written signs comparable to such stability in literature, due to their fundamentally different natures of communication – that music is to be heard, not to be read.[50] Nevertheless, are these expressive structures not related in their function because of their common communicative purpose? Starting with the example of varied readings and their relation to each other in literature (since it offers the most lively discussions on the subject among all arts), we proceed to examine whether there is any correspondence between the varied readings and varied manifestations and to clarify the differences between the attributes of the two groups of expressive structures. The following two points need to be discussed: the process of signification that operates within a musical work, and the conditions for the relationship between a work and its varied representations.

There is one aspect that is considered vital in determining the boundary which encompasses all the different representations in a musical work. Going back to the level of the initial question: how can we know the musician from the music? We wouldn't be aware there was a difference unless either two musicians play the same music, or the same musician plays two musics. We need something to compare with, but we cannot simply compare a represented subject with a representation, unless the latter is an imitation of an existing representation. In most cases of art music, the concepts of 'composition' and 'musician' do not yield to a logical definition appropriate for drawing a borderline between a represented subject and a representation. However, the ground of this examination becomes suddenly animated when notation is introduced. We know instinctively that the musical sign *should* have a very different function from that in literature, but nonetheless we are attracted to the power of authority that writing exerts. Historically speaking, musical notation was initially introduced as a means of transmission, and acquired an increasing importance in Western music, to the extent that today it is almost true to

[50] It can be argued that music can also be studied from the score involving the engagement in a non-acoustic representation of the work, and conversely that poetry is sometimes meant to be read aloud and heard. This may have an important value as representation in instances where the work closely identifies itself with the score, or where the only extant representation is the score. In both cases, however, the reading demands precise understanding of what the signs stand for - a task which is more difficult in music than in literature because music has always been primarily acoustic in its communication throughout history.

say that the act of composing *means* writing. The connection between literature and music looms large not only because of the fact that they are both creative, but because they both take recourse to the medium of writing as a vital part of their creation in Western civilisation.

Before moving on to discuss the significance attached to musical notation, it may be necessary to explain briefly the difference between performing and listening in relation to musical notation. Reading in literature comprises two kinds of function: the first type is an act of apprehension, which is the equivalent of listening in music. The second is an act of interpretation, as in performing drama and poetry, in so far as written signs are concerned. The vital link between the second type of reading and musical performing is that they involve an atemporal contemplation facilitated by the written sign and meaning. Therefore it can be said that reading of the second type is an integral part of performing written music. The description of these roles is not necessary, since it does not lead to a definition of their specific function: literal reading may not be necessarily an act of interpretation, performing can be a simple act of execution, and listening does not eliminate the possibility of interpreting.[51] This is to say that the written signs prompt particular ways of thinking, and the proportion of significance given to this thinking affects the balance between the interpretation and apprehension in literary reading, and determines the psychological positions of performer and listener in musical discourse.

The question of text

Monelle discusses the substance of musical text in 'What Is a Musical Text?':

> The score is, perhaps, the text. This would seem to match the traditional musicological view, in which scholars try to establish an authoritative *text* for music of the past. By this, they mean the musical aspects that can be written, and indeed were written by the composer. Of

[51] The use of imagination as a way of contemplating a musical work can transform the act of listening to diverse effect. This issue of 'active' or 'passive' listening has been discussed since Hanslick. According to Collingwood, the two types of listening can be differentiated into 'listening' and 'hearing', the former referring to imaginative perception and the latter to literal perception: 'A piece of music is not something audible, but something which may exist solely in the musician's head. To some extent it must exist solely in the musician's head (including, of course, the audience as well as the composer under that name), for his imagination is always supplementing, correcting and expurgating what he actually hears. The music which he actually enjoys as a work of art is thus never sensuously or 'actually' heard at all. It is something imagined.' R. G. Collingwood, *The Principles of Art*, Oxford University Press, Oxford, 1938, p. 151; cited in Nicholas Cook, *Music, Imagination and Culture*, p. 36. Cook also gives a list of further references on the subject.

course, the realisation of this score requires much cultural knowledge; but this study, called "performance practice", is not considered a textual study.[52]

Following the precedent of textual studies in literature which concentrate on writing,[53] there has likewise been a tendency in music to consider the score as text. The score as material object exercises an authority for being the only intelligible object of a work. The fact that a piece of music is primarily an acoustic work – a *temporal* phenomenon – whilst literature is not, distinguishes it from literature in its definition of what constitutes text, although the two may progress in parallel. Meanwhile we may ask why performance practice is not considered a textual study whilst there is no question about musical performance being a form of representation of a musical work. Is the performance an insignificant phenomenon, or a residue, that does not represent a work as the score does?[54] I assert that performance is certainly not an acoustic translation of the score, and I even go further to say that it is the most significant manifestation of the text in music. Performance practice *is* a textual study. The question is, where do we situate the authority of text in performance?

We recognise the constant elements in every representation, hence the identification of the work. However, the elemental character cannot identify itself *per se* with any particular forms or instances of representation. It agrees with all but never confines itself to any one in particular. The character is referred to as the acquaintable source, the substance which all the forms and instances of

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[52] Raymond Monelle, 'What Is a Musical Text?', *Musical Semiotics in Growth*, edited by E. Tarasti, Indiana University Press, Bloomington, 1996, p. 246.

[53] Textual studies have a long and established history in the West, evidenced in the history of exegesis of the Scriptures. Here the authority of the text is *absolute*, since all the studies are conducted for the purpose of illuminating the Truth evident in the text, that is a presentation (by virtue of being a chronicle) but not as a representation. The significance of writing discussed in these studies is therefore coming from a cultural premise (the absolution of Scripture) rather than a purely scholarly one.

[54] Or, as far as the fixed nature of representation is concerned, recorded material can claim the same authority as material object as the score does. Recorded material has some interesting characteristics both as fixed and temporal representations. It is a complex subject in itself and will not be discussed in detail here, but it must be mentioned that the viability of recorded material has deeply affected the significance of live performance and the attitudes towards the ideals of performance practice.

representation try to express.[55] It is an ideology, and not an experience, and illustrates itself in the total probabilities of representation. It then follows that if the score presents this character, so does the performance to an equal degree of substantiability. Here the claim of the score as the sole conveyer of the character – being the text – and the performance as a direct representation of the score becomes eliminated. The character *is* the text, and the score and performance are two appearances of the same text, only different in the ways in which the substance is manifested.

How, then, does the text provide the distinction between the subject and object duality such as the signifier and signified? Is the text the subject? We do not even know the definition of 'text' in music. Performance practice is a study of interpretation, and since interpretation must interpret something, this something must function as the subject in this equation. However, when we attempt to define the object this duality disappears. In discussing Iser's theory of reading, Culler points out the contradictory nature of the seemingly apparent duality. He cites Sartre for the way in which readers 'create and disclose at the same time, disclose by creating and create by disclosing', and for them 'everything is to be done and everything is already done'.[56] Culler explains the arbitration of the subject-object duality as an ongoing process:

> For the reader the work is not partially created but, on the one hand, already complete and inexhaustible – one can read and reread without ever grasping completely what has already been made – and, on the other hand, still to be created in the process of reading . . . . The attempt to produce compromise formulations fails to capture this essential, divided quality of reading.[57]

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[55] Roger Sessions as a composer contemplated the variability of performance of his music with a positive philosophy that can be interpreted as his definition of the relationship between musical identity and the score: 'the music is not totally present, the idea of the composer is not fully expressed, in any single performance, actual or even conceivable, but rather in the sum of all possible performances. But having admitted this, we are bound to insist also that the number of possible performances is limited by the composer's text and by the musical intentions which that text embodies.' He claims to be the author of the text; however, his usage of the word 'text' refers to notation - text in a literal sense rather than in the philosophical one. Roger Sessions, *The Musical Experience of Composer, Performer, Listener*, Princeton University Press, Princeton, 1950, p. 85.

[56] Jean-Paul Sartre, *Qu'est-ce que la littérature?*, Gallimard, Paris, 1948, p. 55 and p. 58; *What Is Literature?*, Methuen, London, 1950, p. 30 and p. 32; cited in Jonathan Culler, *On Deconstruction*, Routledge, London, 1983, p. 76.

[57] Jonathan Culler, ibid.

This duality is not however confrontational. The text escapes any definition or confinement, but, instead, it offers itself as the milieu through which we operate interpretation.

What then is *in* musical text? One may suggest that music expresses ideas, conveyed through images. At the same time, one may argue that, although images appear and music appears, music does not express ideas (at all or in part). The ideas are caught like apparitions. Their meaning (if they have any) varies, but images persist as an accumulation towards any possible signification. Therefore it is too early to speculate as to whether there is any meaning at all in the text. Rather, we can look at how musical images proceed in the course of expressing themselves, and at how meaning can be attached to them. In general practice, successful communication between two parties is an all-important purpose in employing a sign. However, the virtue of signification in a work of art may be primarily in the process of the work's self expression. Meaning something is at a level beyond the idea of expressing something. The text comprises something that gives rise to *this* signification – thus making it recognisable as music.

The next question concerns what can be taken as signifier and how it functions in music. Before that, however, the premise of our discussion needs to be articulated. We examine what the score does in expressing a work and explain what the supremacy of writing has brought to our thinking about musical discourse.

Notation in music

Musical notation offers a standard against which all performances can be measured, as the major concrete means to materialise a work.[58] This material solidity readily recognises a qualitative variety within it. The qualitative variety is often experienced as nuances of performance. However, these nuances affect the way in which a given quantity (measurement) is experienced, and this proves the interdependence of the two parameters. Dahlhaus demonstrates this by using an example of musical rhythm: the rhythmic centre of gravity can be marked with an agogic accent of intensity, or

[58] Recording is another means of materialisation, and one becoming increasingly important as it also offers a standard. However, the difference between the score and recording is the magnitude of variance in the subsequent productivity. The score is intended for being translated into sounds which inevitably result in various outcomes, whilst recording is intended for transmitting data which is invariable. Electro-acoustic music has a unique system of signification, due to the materialised property in the performance. See discussions, for example, by Pierre Schaeffer, *Traité des objets musicaux*, Seuil, Paris, 1966.

through a slight lengthening which is not to strike a listener as lengthening but rather is to be perceived qualitatively. He also suggests that the disposition of these possibilities gives a quantitative variety in a given quality – for example, the centre of gravity can be notated by various quantities by modification of duration or of intensity. These two varieties seem alike, but they stand on fundamentally different grounds. The difference between a quantitative entity and a qualitative one is observed in various levels of musical discourse – between form and function, and structural organisation and sonority:

> The distinction between musical quality and quantity may be understood analogously. Qualities, either of harmony and melody or of rhythm, are founded on quantities, without being reducible to quantities. Gradations of consonance and dissonance would be mere abstractions except for the intervals in which they are displayed. But consonance and dissonance, on the other hand, differ from the intervals, their foundation. Interval as quantity and gradation of consonance or dissonance as quality are heterogeneous in a manner like that of text and meaning in language.[59]

The difference between quantitative and qualitative articulates that between writing and performance, and consequently the ways in which the content differs between the score and a performance. The function of musical quantity is to formulate a structure determining the course of acoustic energy, and to provide a norm that is stable and acts as a stimulant to the imagination of those who read it, thus operating as a grammar. However, writing defines only the quantity which is no more than one characteristic dimension of musical images.[60]

Musical quality is distinct from musical quantity in one respect. The former is not reducible to the latter. However, the quantity *is* reducible to the quality because it is the quality which determines the dynamic movement of the energy. The reverse is not possible because the quantity is a mere design in which the energy identifies its form. The quality identifies itself more immediately with the images, and constitutes the vitality which works on our perception. Therefore it can be said that the quality has more significance in music, but it is also precisely the

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[59] Carl Dahlhaus, *Esthetics of Music*, op. cit., p. 82.

[60] In the present discussion, images are the earliest form in which an expression becomes manifest to human perception. An image can be understood as the reverberation of an inspiration. In the above context the word does not have its usual meaning as impression or representation, since they follow the experience of, or legitimise the existence of an object.

intervention of writing that illuminates it. The quality of music is like rhetoric, not axiomatically identifiable, for the very reason that our perception of the quality does not function unless under the conditions of a given formal existence. These conditions, in every circumstance, comprise many cultural attributes including writing: the definition of quantity is intrinsically related to the manifestation of the quality – as seen in Dahlhaus's example. The two elements are dialectically opposed and irreconcilable, but complementary in their expressive purpose.

We have so far dealt with the function of musical writing but left a question that may be more fundamental. How does the composition suggest images? We have seen that composition (as opposed to performance) gives a quantitatively organised dimension of images, therefore it is a partial description of a mobile entity for the purpose of providing a possibility of reproductive communication. Although it is partial, notation has a crucial role in transmitting images. If one accesses ideas of music primarily through performance, then composition does not suggest images, and therefore this body of measurement – musical notation – is fundamentally not expressive except in its function as a sign system (although it may gain independent expressivity as a counter-product of composition). This is because the way in which images are founded and their vitality is derived contradicts what musical notation describes. If we accept that the substance of music is its acoustic dynamism, material quantity is only the trace of the flowing quality expressed in terms of time and space. What is at the origin of musical images is the presence of this flowing quality.

> Suppose these elements [material quantities] were missing: would really nothing living subsist? For my part, I believe that this is precisely where we should see the world come alive and, independent of any instrument, of any physical properties, fill up with penetrating deep waves which, although not sonorous in the sensory meaning of the word, are not, for this reason, less harmonious, resonant, melodic and capable of determining the whole tonality of life. And this life itself will reverberate to the most profound depths of its being, through contact with these waves, which are at once sonorous and silent . . . Here to "fill up" and "plenitude" will have a completely different sense. It is not a material object which fills another by espousing the form that the other imposes. No, it is the dynamism of the sonorous life itself which by engulfing and appropriating everything it finds in its path, fills the slice of space, or better, the slice of the world that it assigns itself by its movement, making it reverberate, breathing into it its own life. The word "slice" must not be taken in its geometrical sense. It is not a matter of decomposing the world virtually or actually into sonorous balls, nor of tracing the limits of the sphere determined by the waves emanating

from a sonorous source.[61]

Musical notation denotes a structure that offers a construction of what *might* become a work – since a work of art is not just a presentation by means of material quantities taken from the images, but a presentation *through* those quantities. It is particularly so in music, because of the materiality being designated of secondary importance in the discourse. Indeed, notation does not measure images but does give measure *to* images to help their expression. We may therefore question, and possibly relocate, the values we attach to writing in its contribution to musical signification.

In most of the music we play the task of composing and performing is divided into two disciplines: our convention sees the function of writing as providing a definitive norm of a work, and that of performing as filling it in appropriately. It is expected that the performer will understand the range of qualitative variety in a musical work, and realise a successful synthesis between the given quantities (notes, rhythms, dynamics etc.) and the qualities (appropriation of various contexts, notably the question of style). Naturally, the task of the performer starts with an assimilation of written facts, and then an inquiry into the appropriate relationship between the images and their given quantitative entities in the work. Here we acknowledge the delicacy of the task in observing this complex system of signification. At the same time, we see how often it is the case that a written document (even if it is incomplete) is the only source that proves the existence of a musical work. We realise the necessity to examine further the musical discourse surrounding the written material form.

Contributions of semiology[62]

> A science that studies the life of signs within society is conceivable; it would be part of social psychology and consequently of general psychology; I shall call it semiology.[63]

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[61] From Eugène Minkowski, *Vers une Cosmologie*, chapter IX; editorially quoted in Gaston Bachelard, *La poétique de l'espace*, Presses Universitaires de France, Paris, 1958; Gaston Bachelard, *The Poetics of Space*, translated by M. Jolas, Beacon Press, Boston, 1969, p. xvii.

[62] Two terms are used synonymously: semiology and semiotics. I have chosen to use the first, following de Saussure's statement which can be considered as an origin of the entire stream of development that followed it, as well as for its distinction between 'speech' and 'language', which is directly relevant to my discussion of the composition and performance in music.

[63] Ferdinand de Saussure, *Course in General Linguistics*, edited by C. Bally and A. Sechehaye, translated by W. Baskin, Collins, Glasgow, 1974, p. 16.

The historical origins of semiology are found in the science of linguistics in the twentieth century. The scientific and logical analyses of signs have contributed to our understanding of language and human communication, and consequently their means of analysis has also stimulated the entire system of thinking about meaning. In this way semiology can be seen as a demonstrative branch of studies in semantics as a science of significations. Karbusicky defines these two terms as:

> Semiotics ('theory of signs'): theory of human communication with the help of signs, which traces especially the factors of sign-morphology and the establishment of sign-system: the essential logic and categories of its elaboration in basic relations (relations according to means, object and interpretant), its practical operation.
>
> Semantics ('theory of meaning'): theory of the conditions, psychological, anthropological, social-historical, cultural and aesthetic, which traces the processuality of the creation of meaning, its metamorphosis and dissolution.[64]

These definitions articulate the limits of semiology and are helpful in avoiding the error we so often make of perceiving semiology as a principle of communication. Semiology is only a theory and not a philosophy, because it considers primarily the working scheme of signification without concerns for its effect or consequence on us. In semantics we see the significance of the interpretants more prominently, because it is more about human communication than about signs. Whilst communication is paramount to signification in semantics, in semiology signification has a source that is not always destined for communication. It may be said that the interest of semiology lies in this surplus of signification. Semiology offers merely a tool of investigation for reassessing the accepted, conventional criteria of communication through means of approaches that are more scientific, logical, universal, and relevant.

There have been a number of studies of semiology in music in the past thirty years. They have contributed to the understanding of tonal and harmonic gestures in the overall structure of a composition. Traditional analysis of harmony and form is also a study of signification (for example, how the relationship between the sections

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[64] Vladimir Karbusicky, *Grundriss der musikalischen Semantik*, Wissenschaftliche Buchgesellschaft, Darmstadt, 1986, p. 17; cited in Raymond Monelle, *Linguistics and Semiotics in Music*, Harwood Academic Publishers, Chur, 1992, p. 27.

A and B signifies in the overall context of a given piece, or how a particular harmony strengthens the expression of other parameters in the piece). More recent study of semiology in music identifies signs at a much more detailed level. Some of the semiotic approaches have been particularly influential in the way we appreciate music – notably Nattiez's semiology and Forte's set theory.[65] These analyses involve uniquely individual methods of identifying signs and deducing the musical structure from the pattern these signs make.

In the case of Nattiez, it is an implied fact that the score represents the music most significantly, and the quality *within* the specified quantity is 'the music'. His justification is that 'the score is . . . a *symbolic* fact which is absolutely essential to its transmission'[66] and that the analysis which is focussed on the score can aspire to 'the integration into its text of the most searching clarification possible of the method used; this has the effect of combining the results of the analysis itself with a level of methodological metalanguage that may be projected onto it'.[67] The method employed resembles that of linguistic phonology in categorising gestures into two groups – rhythm and intonation. Indeed, the method achieves a clarification in the ways in which every gesture is related to the whole. However, the clarification is so true to the score that it is almost possible to identify the signs in the degree of pictorial semblance.

In Forte's analysis, the identification of signs is reached by reducing a group of notes into sets of pitch-classes. Here the segmentation of notes into groups plays a critical role, as the analysis cannot be complete without this segmentation being fixed. The classification of pitch-classes is firmly supported by the dodecaphonic orientation of harmony where intervallic factors are vital (for example the major tenth has equal significance to the major third). The analysis often shows a penetration into the subconscious activity towards the integrity of harmonic structure, and clarifies the topological gradation of harmony which has an immense

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[65] See for example, Jean-Jacques Nattiez, '*Densité 21.5* de Varèse: essai d'analyse sémiologique', *Monographies de Sémiologie et d'Analyse musicales*, No. 2, Université de Montréal, Montreal, 1975; 'Varèse's *Density 21.5*: a Study in Semiological Analysis', *Music Analysis*, translated by A. Barry, Vol. 1, No. 3, Blackwell, Oxford, 1982, pp. 243-340. The methodological details of set theory are given in Allen Forte *The Structure of Atonal Music*, Yale University Press, New Haven, 1973, and a comprehensive demonstration of the theory can be found in Nicholas Cook, *A Guide to Musical Analysis*, Dent, London, 1987, pp. 124-151.

[66] Jean-Jacques Nattiez, *Music and Discourse*, op. cit., p. 320.

[67] Ibid., p. 329.

significance in some compositions.[68] However, it is hard to deny that this numeralisation is a literal reductionism and that the segmentation only emphasises the separation between the adjacent sections, which *totally affects* the identification of the sets. These drawbacks are not so strongly felt in so far as we attach significance to the score as identified with the music. Nevertheless the method reminds us of the supremacy of quantitative literalisation over the qualitative reality.[69]

It is difficult to reach a satisfactory definition of what can be taken as signifier in musical discourse. The fact that the semiology of Western art music has relied for its source on written quantity has revealed contradictions far more than the legacy of linguistics could have expected. Employed material quantity in composition may rightly be considered to be the most comprehensible and universal measure in Western music that can function as signifier. Nonetheless, what do we understand of a signifier when it does not function as a sign? How do we understand the non-signifying aspect of a signifier in the context of signification?

Which form of representation expresses images most accurately? What distinction can be attached to writing and performance, in terms of their roles as signifiers? A theory given by Peirce may be considered as a possible answer to the last question. He gives a set of three types of signs according to the mood in which they signify. The first type indicates a sign that is a quality, the second a form, the third a category.

> A sign is either of the nature of an appearance, when I call it a *qualisign*; or secondly, it is an individual object or event, when I call it a *sinsign* . . . ; or thirdly, it is of the nature of a general type, when I call it a *legisign* . . . . [It is] not a single object, but a general type which, it has been agreed, shall be significant. Every legisign signified through an instance

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[68] Forte's method is a product of the desire to explain chromaticism in terms of harmonic structure. Regardless of the uses of his method, many analyses of the 'Tristan chord' since it was heard for the first time are probably the best examples of this tendency to prove its harmonic integrity: they reveal symbolic significance in the key relationships that are more the results of workings founded on other parameters than those of extended tonality. However, the idea of extended tonality can be incorporated consciously or unconsciously in the compositional process. Some of Forte's analyses on works by Scriabin, Stravinsky and the composers of the Second Viennese School render this underlying level most convincingly as a principal idea of composition.

[69] Another criticism often directed at Fortean analysis is that it relies heavily on the scientific method to the extent that the whole process becomes a self-validation. The process originates from the premise that the nominated elements are musical *facts*. Such a criticism can be seen as a reaction against giving a total dominance to the fixed aspect of music - an unconscious reproof to the import and care most musicians naturally give to the quantitative elements in performing music.

> of its application, which may be termed a *Replica* of it . . . . The Replica is a sinsign. Thus, every Legisign requires Sinsigns.[70]

Both performance and writing can be considered as the second type (sinsign), for they realise music as an event and as an object – partial and inadequate although they may be. However, the performance can be more than an event. If we follow his theory, the sinsign delineates the *concept* of the subject. My argument is that the performance does not only delineate the concept of music, but also its *substance.* The notated score copy means to us more than just a written version of the work, even amidst the effort to discredit its definitive power. The work as a generic form may be considered as a legisign that provides the score and performance, but a work of art in varied representations carries much more *quality* than the meaning which this epistemological framework provides as a sign.

There are two points to be found in this comparison. Firstly, it is hard to establish a stable link and distance between images and their concept in music, and therefore any form of representation resists the conceptual distinctions of the above signification system. Secondly, there is no representation that *only* signifies the qualities in music (no qualisign), except the fact that the qualities are felt everywhere in the discourse. Both points are thus related to the problem of the ways in which each sign (or representation) conceptualises musical images. It can be assumed that the ways in which the qualitative entity is handled clarify the course in which images are signified. Peirce's theory is a philosophical enterprise and encourages little application in the areas where the identification of signs is already problematic. Nevertheless, it points to the fact that in music the conceptualisation of images has a unique property where the qualitative elements have a critical role in the signification.

In order to examine the other questions raised earlier and reassess the components of musical signification, we need to go to the question of the approach and location in which signs are produced, if we wish to develop a semiology of musical performance.

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[70] Charles Sanders Peirce, *Collected Papers of Charles Sanders Peirce*, edited by C. Hartshorne, P. Weiss and A. W. Burk, Harvard University Press, Cambridge, 1958, Vol. 2, §243-246.

The approach towards musical expression

i. Production of music

At this stage it may be helpful to see how music became a medium of fine art, since this formulation suggests the manner in which the ideas had changed over the centuries. Historically speaking music was not always considered as a fine art. The Renaissance saw music more predominantly as a craft:[71]

> Prior to the Counter Reformation, music was generally perceived as among the crafts, and in its primary function, as the setting of religious texts, seems rather analogous to the particular craft of setting precious jewels. It is, in short, what we would call now one of the decorative arts. Various intellectual movements in the second half of the sixteenth century, notably the Counter Reformation and the rise of opera, transformed the musical setting of texts . . . into a palpably representational art, recognised as such, that is, as *representational*, although not yet as Art with a capital "A", since, as Kristeller observes, "the Renaissance . . . was still far from establishing the modern system of the arts."[72]

It was only towards the eighteenth century that music came to be considered a fine art, recognised as having the ability to imitate nature by means of symbolic expression in sounds. The representation of nature was the main criterion of a work of art. This concept was derived from the Greek-Roman idea of art as an imitation of nature, and furthermore its application in music was significantly representative of Enlightenment thought. Its theory tended towards quasi-mathematical and epistemological justification of aesthetic activities, thus providing a depth and complexity in the possibility of representing nature. Kant describes the capacity and unique attributes of musical expression in his *Critique of Judgment* in this light:

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[71] The question of whether music is a craft or art is not clear-cut in any way and concerns rather the balance and the shift of emphasis in the ways people perceive music. Both forms of musical composition have always existed and remain active to this day. It may also be necessary to clarify the definition of the word 'craft' here: the word encompasses meanings from a simple skill to elaborate technique. An elaborate technique is often aesthetically pleasing in itself, and the difference between art and craft is a fine line. However, craft is fundamentally functional in its origin and purpose, whilst art is not.

[72] Peter Kivy, 'Is Music an Art?', *The Fine Art of Repetition*, Cambridge University Press, Cambridge, 1993, p. 370. Kristeller quotation is from Paul Oskar Kristeller, 'The Modern System of the Arts', *Renaissance Thought and the Arts: Collected Essays*, Princeton University Press, Princeton, 1980, p. 186. However, it must also be mentioned here that, in contrast to the above general claim, Reinhard Strohm demonstrates how some composers such as Josquin des Prez introduced new means of constructing music, including connecting modes and the 'moods' of the words, and suggests that there was much more than only craftsmanship in musical composition during the Renaissance period. Reinhard Strohm, *The Rise of European Music 1380-1500*, Cambridge University Press, Cambridge, 1993, pp. 608-644.

> It is of note that these two senses [of hearing (music) and of sight (art of colour)], over and above such susceptibility for impressions as is required to obtain concepts of external objects by means of these impressions, also admit of a peculiar associated sensation of which we can not well determine whether it is based on sense or reflection; and that this sensibility may at times be wanting, although the sense, in other respects, and in what concerns its employment for the cognition of objects, is by no means deficient but particularly keen. In other words, we cannot confidently assert whether a colour or a tone (sound) is merely an agreeable sensation, or whether they are in themselves a beautiful play of sensations, and in being estimated aesthetically, convey, as such, a delight in their form. If we consider the velocity of the vibrations of light, or, in the second case, of the air, which in all probability far outstrips any capacity on our part for forming an immediate estimate in perception of the time interval between them, we should be led to believe that it is only the *effect* of those vibrating movements upon the elastic parts of our body, that can be evident to sense, but that the *time-interval* between them is not noticed nor involved in our estimate . . . [73]

The major consequence of the philosophical argument in the eighteenth century brought a prominent change in the system of musical expression: music became furnished with a metaphysical level in the process of expressing images. The representation may not have been connected directly with nature (the represented being), but if the creative process involved humanly reflective understanding – the point which Kant elaborates in conjunction with the art of speech[74] – it could be legitimately considered worthy of fine art. In this way the craft of expression acquired a new significance and affected decisively the future course of development in music. Simultaneously, the provision of a metaphysical level meant the universalisation of ideals in fine arts, and it established a ground for aesthetic practice and judgment. The new criterion expanded the potential of musical expression to the extent where music could share and exchange the system of expressive language with the other fine arts. In other words, music started to exploit the expressive devices that had originally belonged to other fine arts, such as pictorial, gestural, and programmatic means of expression. The artistry in musical expression became focused on bringing images via all possible means to reality.

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[73] Immanuel Kant, *The Critique of Judgment*, translated by J. C. Meredith, Oxford University Press, Oxford, 1952, §51, p. 189.

[74] Ibid., §52 and §53, pp. 190-196. For example, a song that combines poetry (to which Kant gives the highest aesthetic worth among the fine arts) with music demonstrates that 'the pleasure is at the same time culture, and disposes the soul to ideas, making it thus susceptible of such pleasure and entertainment in greater abundance'.

How do we determine the appropriate articulation with which to express these images? The expression of the artist in any medium is processed through a limited form of articulation that imparts particular elements of images. We can surmise that the task of the artist is to find a suitable means that has a strong expressive power with which to appropriate images. However, one of the problems of expression in music is that the sounds have an immense variety of expression and we are often in difficulty when trying to establish a distinct relationship between the images and realities. This is due to the immaterial means of expression, so that we sometimes lack any concrete material – or intelligible criterion – to prove the course of expression. For example, the image of harmony may be presented by the application of a concept that has a harmonious property, or by referring to a matter or event that enacts harmony. In the latter case, the understanding may come more concretely because it is an imitation of something that is already an expression, but in the former case the understanding involves an abstract process that may not always register the image in our mind, but is nevertheless successful in impressing it on our perception. This is the fascination Kant describes.[75]

The scope between images and their articulation is not only extensive but also ambiguous in music. The success of expressive process depends on many factors, one of which is the shared expectation between composer, performer, and listener. Such expectation depends heavily on the cultural premise on which the event takes place. At this moment we can only establish the fact that the amplitude of this space of signification increases the responsibility and competence of craftsmanship in the artist who handles the expression of the images. The extensive (and elusive) potential of expressive power may seem a problem, but is often turned into a creative advantage. It introduces a level of expressivity where the expression goes beyond a mere imitation of images into solid entities – the act of expression itself creates a poetic scheme aided by the immaterial (metaphysical) means. Thus

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[75] During the seventeenth century we find many examples which contain expressions that are prominently ambiguous in meaning as they were prior to becoming customised into the Baroque rhetoric. Here is one example: the ways in which meditation is expressed in the works of Francisco de Zurbaran. As a painter specialising in portraits of saints and monks, Zurbarán painted those people practising meditation. There are at least two types of expression operating. Firstly, the reference to meditation is self-evident by the object shown. Secondly, the images of meditation are realised through the images of white as a colour. The painter used in communicating the images of meditation the concept of the colour as purity of mind and body (which is also explained in the rhetoric), and the sensation of the colour as silence and plasticity (an impression). As to the second point of the second type the explanation is speculative, as there is no theory to prove it despite its expressive power.

the artist fills the space with the dynamism that enriches the interplay between the two extremes of reality and imagination. The young Rilke grasped the magnitude and potential of such craftsmanship, the wealth and eloquence of the expressive process, when he stood in front of a painting by Cézanne:

> Somehow I too must find a way of making *things*; not plastic, written things, but realities that arise from the craft itself. Somehow I too must discover the smallest constituent element, the cell of *my* art, the tangible immaterial means of expressing everything . . . [76]

and Eco aptly observes in Constable:

> Constable's painting *Wivenhoe Park* was inspired by a poetics of the scientific rendering of reality and to us seems decidedly 'photographic', with its detailed portrayal of trees, animals, water and the luminosity of a patch of field caught by the sun. . . . Constable therefore had invented a new way of coding our perception of light, and of transcribing it onto canvas.[77]

ii. Further production (reproduction) of music

We now examine a production of music approached by the performer. Whether this should be called a reproduction or subsequent production of music depends on the cultural context and we will not concern ourselves with this here.

Every medium of art holds individual scope for expressive languages as a result of a particular form of articulation. Some of these languages can also be shared by other media of art; although Barthes remarks that language is thought to be the only semiotic system capable of interpreting another semiotic system, it manages very poorly when attempting to interpret music. The normal practice of music criticism only succeeds in translating a work or its performance into 'the poorest of linguistic categories'[78], the adjective. Then he suggests,

> rather than trying to change directly the language on music, it would be better to change the musical object itself, as it presents itself to discourse, better to alter its level of perception or intellection, to displace the fringe of contact between music and language. It is this

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[76] Rainer Maria Rilke, *Briefe über Cézanne*, edited by C. Rilke, Insel Verlag, Frankfurt, 1952; *Letters on Cézanne*, translated by J. Agee, Jonathan Cape, London, 1988, p. v.

[77] Umberto Eco, *A Theory of Semiotics*, Indiana University Press, Bloomington, 1976, p. 204.

[78] Roland Barthes, 'The grain of the voice', *Image Music Text*, translated by S. Heath, Fontana Press, London, 1977, p. 180.

> displacement that I want to outline . . . [with regard to] the very precise space (genre) of *the encounter between a language and a voice*. I shall straight away give a name to this signifier at the level of which, I believe, the temptation of ethos can be liquidated (and thus the adjective banished): the *grain*, the grain of the voice when the latter is in a dual posture, a dual production – of language and music.[79]

The more universal semiology should find a standpoint where two different categories of systems can converge. What is engaging in his argument is the redistribution of levels where signification is located.

The effort is made to establish the common ground of speech and music from which the two semiotic systems originate their operation. In Barthes' theory, these systems do not converge during the process, and therefore the need to focus on the acoustic/performative aspect is undoubtedly one of the shared conditions on the premise of operation of both categories. This acoustic ground bears a unique power of becoming autonomous and significant by itself, not necessarily affected by the orientation of a work. Its vitality 'forms a signifying play having nothing to do with communication, representation (of feelings), expression; it is that apex (or that depth) of production . . . where melody explores how the language works and identifies with that work'.[80] At the origin of creativity with the flowing quality of images there is something that determines the mode of expression. In speech it is termed 'diction', and it is the same thing that gives energy to speech and to music – the materiality of the body which emits signs. The materiality of the performer is as concrete as the materiality of measurable quantities in writing.

What then is the relationship between musical images and the materiality of the performer? The attributes that define the character of a performer are scientifically measurable. However, it has to be said the performer is also a mass of qualities that are only partly quantitative.[81] These qualities are the manifestations of the genetic as well as cultural physiognomy of the person. The complexity of such qualities is substantial enough to produce individual images of a person, and these are often referred to as 'fingerprint', 'personal style', or even 'talent'. The personal

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[79] Ibid., pp. 180-181.

[80] Ibid., p. 182.

[81] Here I exclude those performative apparatuses that are not subjective, such as electrically devised performing instruments, from our consideration. Non-subjective performing bodies employ a different system, and cannot be included in the present discussion.

images form the ground upon which any act of signification is articulated. Therefore these material images are prerequisites to the communicative operation, and autonomous and unconnected from musical images which the person communicates. In this way, a performance constitutes its makings from a binary set of images – that of the performer and of the composition.

This hypothesis can be generalised to the extent that the performer is just one case of all probable interpretants. This is to say that it can be the composer, the performer, or the listener, who is involved in the process of musical communication, different only in their role and responsibility in the process and outcome. In short, the interpretant is the carrier of musical images, leading to the view which makes the co-existence of the subject and object images essential. We know instinctively – as seen in the example at the beginning of this chapter – that qualities of the interpreted subject (dance/music) and those of the representational object (dancer/performer) are different. It is not because the performer is an individual independent from the identity of the composition, but because we recognise the duality of images between the subject and the object creating something that cannot be attributed solely to either of them. It is the 'grain' – the fundamental materiality – of the interpretant, with its individual images, that provides the motor to determine the mode for musical images in the exploration of how the composition (the quantified images) works, thus creating dynamic discourse.

If the expressive elements in a speaker are the voice, diction, and intonation, we consider the equivalent of those in a performer to be the tone colour, articulation, and pitch. Every performer has an individual musical timbre, and this does not necessarily coincide with the quality of images in a composition. It can be said that the interest of performance practice lies in this: the semiology of timbre broadens the horizon of operation in the semiology of music which otherwise limits the understanding of signification to within what is quantitative – the inevitable. This suggests the necessity of exhaustive examination of the approaches towards the identification of the *surrounding* of the score. The importance given to the connection between the score and the corresponding sound must be balanced with the carefully analysed relationships between the creative images and the score. The incorporation into the examination of the function of 'grain' – the affectivity of timbral physiognomy – leads to the question of context: where the semiology should be situated in music.

The location of semiology

Nattiez views Molino's semiotic theory[82] as a symbolic scheme independent of any social context, although he, Nattiez, is aware that the position of 'meaning' is central to this theory. He allocates the tripartite scheme of images, work, and sound, to a set of terms that convey their function in a social context of communication: producer, trace, and receiver.[83] The scheme consists of two processes: the one approach from the producer to the trace is called a 'poietic' process, and the other from the receiver to the trace an 'esthesic' process. Thus it can produce three kinds of analysis: analysis of the trace (the neutral level), analysis of the poietic process, and analysis of the esthesic process. The trace is given a concrete position as the axis of the communication between the producer and the receiver, the construction and the reconstruction. The analysis of the trace produces a coding that shows the most stable facts in the signification of a particular music among the outcome of the three types. The three analyses do not always correspond: the poietic is not necessarily destined to end in communication and the esthesic is strongly affected by the context, the facts learned in the analysis of the trace may not be structurally significant or aurally perceptible at all. In the comparative analysis of the two outer processes, the aim is often a local synchronisation, an establishment of a code common to both sides of the axis, because this is what which permits communication. The scheme raises some questions: does such a method of objectification and reductionism really represent the signification? Can we relate them to each other otherwise for a better understanding? Is any analysis more representative than the others? The comparative analysis of the two processes tends to ignore the possibility of non-synchronic elements creating expressive power. Besides, any structuralist approach to music has at times appeared to imply how music *should* communicate, and the established code could be understood as an imperative, a criterion of ethical correctness. There are many errors we may easily

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[82] Jean Molino, 'Fait musical et sémiologie de la musique', *Musique en Jeu*, 17, 1975, pp. 37-62; 'Musical Fact and the Semiology of Music', translated by J. A. Underwood, with an Introduction by C. Ayrey, *Musical Analysis*, Blackwell, Oxford, Vol. 9, No. 2, 1990, pp. 105-156.

[83] Jean-Jacques Nattiez, *Music and Discourse*, op. cit., p. 17.

fall into. It requires a remarkable vigilance to situate this scheme and utilise it effectively.

Explaining the code of communication slightens the affectivity of non-code, non-communicative elements that are nevertheless an integral part of signification in music. By offering three kinds of analysis with each outcome being different, Molino's scheme expresses an acknowledgment of the impossibility of defining communication. However, its success lies in negating the non-existence of the communication system.

> Molino's theory is not a negation of communication. It is, instead, a theory of symbolic functioning that deems communication no more than any *particular case* of various modes of exchange, only *one* of the possible results of the symbolic process.[84]

While understanding the nature of symbolic functioning in the tripartition, we may still ask a question: is it possible *not* to give the trace a concrete location? We may understand the trace only as an attribute of the larger communication system. Notation can be considered as a phenomenon in the course of musical signification, but not necessarily as the sole bearer of signs. We have seen that taking musical writing as signs is in any case treacherous. It is evident that notation can be nothing more than a description of something, and takes no immediate responsibility in the realisation for which it is described. Indeed, this something never shows itself in writing except as a trace – being a trace postulates that the subject (whose trace it is) lies unrecognised.

Molino's tripartition has opened up a horizon which helps us understand the vortex of musical signification and communication by providing a model of investigation that articulates the ways in which various interpretants (composers, performers, listeners, etc.) operate. Here we may derive another tripartite set as a preliminary examination to Molino's in order to learn how to locate his scheme effectively. I suggest the following: images, concepts, and timbre. 'Concepts' indicates elements that can be conceived through reason, or transcribed so as to leave a trace. The examination of this set is aimed at observing the nature of musical signification, how the images and concepts correspond. We are at the moment

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[84] Ibid.

leaving out any social context which is inevitably involved in communication, in order first to clarify the system of signification within the given frame of a work. The communication system involves a number of conditions to which the signification is subjected to the extent that the former can obscure the nature of the latter. However, two things should be pointed out with reference to the involvement of the interpretant in the signification. Firstly, this set does not exclude active involvement of the interpretant within the function of signification. On the contrary, it necessitates it, because it is the interpretant who holds, acts upon and recognises the three categories. Some of the physical and cultural limitations that define our capacity to perceive will be considered within the extent that there is a vital influence on the signification itself. The second point is that the interpretant is not divided into the opposition of producer and receiver, or discriminated according to the role each interpretant plays in the system. This is resolved by involving all parties with equal concerns in the opposition of the images and concepts. The subversion of contrasts should help us understand the text of a given work.

Given this positioning, timbre may be understood as a coding *medium*. It is not a code itself, because timbre is clearly not a structural object. This mobility/fluidity is the reason for employing this tripartite set as a preliminary examination in order to survey elements in the signification (including the communicative and non-communicative), and at the same time the one which justifies the purpose of the attempt to give a focus (if not the position as a centre) to timbre in the examination.

Concerning the elements of semiology

i. Discussion

Because of the distinct way in which signs are understood, we may consider the examination of the images-concepts-timbre set as a study of arbitration. This aims to complement the semiology of music which has been taken to be a study of communication between written musical signs and meaning. The substance of signification, musical timbre, is experienced throughout the process in the present examination, therefore it can be understood as a morphology of timbre. The constant presence of timbre on the level of experience overcomes two problematic facts of

communication: the difference in the manners in which the substance is perceived according to individuals, and the difference in the ontological forms of representation (such as composition and performance). In conducting the study we need to confine ourselves to attempts at a theory of signification, not at a theory of semantics (how music communicates). Thus we will understand the substance to be an entity that appears in multifarious modes regardless of what it might mean or what articulation it might form in the psychology of the listener.

Images and concepts are the products of two forms of knowledge. The former come from intuitive knowledge of individual things obtained through the imagination of the individual, and the latter from logical knowledge of the relations between the things obtained through the intellect of the universal. Concepts, however, are not merely partial images reduced to the quantitative, because concepts are also a productive agent whose vitality can create the images of concepts.

> Those concepts which are found mingled and fused with the intuitions are no longer concepts, in so far as they are really mingled and fused, for they have lost all independence and autonomy. They have been concepts, but have now become simple elements of intuition.[85]

Signification can thus take on a chain-reaction after the initial perception of dynamic images (those ones which precede concepts), if we understand the initial perception of images to be the cause of signification. In other words, it is intuitive knowledge which causes and directs a sequence of interaction with logical knowledge to express something. Intuitive knowledge can in this way transform the *function* of logical knowledge during the sequence. Images possess the power to conduct a transformation of the function of concepts, and it is this power of intuition which makes concepts as vibrant as images.

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[85] Benedetto Croce, *Estetica come scienza dell'espressione e linguistica generale*, 1909; *Aesthetic as Science of Expression and General Linguistic*, translated by D. Ainslie, Transaction Publishers, New Brunswick, 1995, p. 2. Croce gives his definition of intuition thus: 'intuitive knowledge is expressive knowledge, independent and autonomous in respect to intellectual function; indifferent to later empirical discriminations, to reality and to unreality, to formations and perceptions of space and time, which are also later: intuition or representation is distinguished as *form* from what is felt and suffered, from the flux of wave of sensation, or from psychic matter; and this form, this taking possession, is expression. To intuit is to express; and nothing else (nothing more, but nothing less) than *to express.*' (p. 11) Croce's 'intuition' is similar to Barthes' 'grain', but its impact on the act of appreciating the object is of much greater measure - that is to say that there is a greater variability that the intuition can perform on the definition/perception of the object.

The virtue of *artistic* mediation therefore lies in the handling of the relationship between images and concepts. In the case of music, this mediation is enacted not only by the composer, but also by the performer. Any person possessing intuition can develop transformations of the function of concepts, and express images as dynamic as they are originally encountered. If we define the intention of any scientific work is to preserve the dynamism and articulate it in the most specific way, we may understand that the intention of every artistic mediation is to preserve the dynamism and articulate it in the most universal way. It is the degree of this effort which distinguishes a work of art.

> The difference between a scientific work and a work of art, that is, between an intellectual fact and an intuitive fact, lies in the difference of the total effect aimed at by their respective authors.[86]

In music an acoustic quality can lend itself to many conceptual definitions. The vitality of the energy within a sound mobilises the images to transform themselves into concepts, concepts to new images, then to new concepts, and so forth, extending the scope and diversifying the articulation of outcomes. The volume (or body) grows into a large mass comprising numerous sets of images founded in various stages of the process. We may question the value of the initial images in the light of a multitude of concepts: does the identification of the initial images serve towards a clarification of the significance of a particular timbre? If the shared characteristic of all the images is the energy that generates them, it leads to the idea that the products (concepts) of this energy have the shared qualitative significance (qualitative elements), *although the perceived images themselves may be different.* To identify the initial images is to nominate these qualitative elements which emerge in all their concepts. Such identification leads us to the knowledge of the area that engenders the atoms of the collective images – the text of the work.

We understand very well some of the concepts involved in the process, and we may even understand some qualities characteristic of these concepts. Assuming a given timbre has generated these qualities, we can then assess the area of qualitative elements of this timbre for further examination. This area can also be said to most

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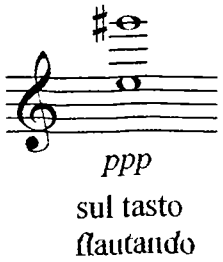
[86] Ibid, p. 3.

likely hold the quality of initial images (since all the concepts claim the initial images as the cause of the transferral), and it is likely that the identification of the area leads to the recognition of the processes of conceptualisation. Consequently this identification leads to the recognition of other areas to which the collective images refer, the involvement of which is an essential part of the signification process. Presently we shall focus on this process of transferral between images and concepts from the position of the performer, for it reveals more clearly the issues involved in defining the affective area of a given timbre through expounding some ambiguities and contradictions.

ii. Example

An example can be easily found at the level of everyday practice. There are instances where a performer comes across many indications given within a small space of time in music, which suggests that a precise quality and a great care of execution is asked for. It can be like this:



Ex. II 1

A sound on the violin, with two long notes held together at the interval of a major tenth with descriptions: *flautando, sul tasto, ppp.* A single sound can lead in this way to various conceptual descriptions, which are all related to each other in their significance as a qualitative whole before arriving at their definition. The process of this particular transferral between images and concepts may be easier to follow from

the position of the person who produced the concepts.[87] The two pitches may have been determined first, then the dynamic, then the other parameters. Why does the producer keep adding? The effort may be directed at defining precisely the outcome as well as suggesting a small number of optional means in which the required sound can be best achieved. The questions are: do the descriptive signs (as concepts) specify the quality of timbre better as their number increases? Does an obedient execution of these indications lead to the most appropriate expression of the images that brought them about? Or should the effort of this producer be understood as an attempt at conceiving something inconceivable? If that is the case what exactly *is* the space of interpretation and where should it take place?

The answer to the first question is generally speaking 'yes' from the producer's side, and 'no' from the reproducer's (performer's) side. The 'no' can be proved by the contradictions presented in an attempt at an obedient execution. Let us describe the suggested properties of these indications in the above example. The two notes held at the interval of a major tenth can signify many things. Technically, the higher pitch is an overtone of the lower (transposed down by an octave), and the fact of this relationship suggests a harmonious element between them. The *flautando* means literally 'to be played like a flute', therefore the quality of this sound should simulate that instrument's. The *sul tasto* indicates the position (on the fingerboard) to be bowed and the resulting action 'softens' the sound. The *ppp* means a small degree in amplitude, although the measurement is a relative one. The producer is indeed specifying the qualities through conceptual definitions.

However, through actual experiments with these specifications and their effects on the violin, we soon become aware of the variations this sound can have. A major tenth on the violin is a practically demanding one to execute, due to the stretch of the left hand, and can lead to great tension in the sound. Holding these two notes together usually projects the sound louder than a single note, particularly so in this case because the given large interval makes the upper pitch difficult to hear. There

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[87] Nicolas Ruwet discusses the arbitrary nature of articulations often involved in post-Webernian serialist compositions. He argues that many of the intended articulations are seldom perceived in performance (even in the performer's best possible attempts at articulating them), because music does not have a language the infra-structure of which is built on a solid, referable foundation – such as literature being based on spoken language. The fact that music has to create this infra-structure for itself can be seen at the root of the problems which arise when musical articulation goes beyond its own safety-margin, that of tonality. Nicolas Ruwet, 'Contradictions within the Serial Language' (1958), translated by M. Shenfield, *Die Reihe*, edited by H. Eimert and K. Stockhausen, Theodore Presser, Pennsylvania, Vol. 6, 1960, pp. 65-76.

are at least two options: the *ppp* may have to be taken as symbolic in order to make both pitches heard, or, the upper pitch be reduced to a non-harmonic noise in order to maintain the soft amplitude. The *flautando* may suggest a character of stillness, or on the contrary something like an echo (a characteristic of overflowing activity). Though it is more often produced by means of bow positioning, perhaps more effectively characterised in this case by means of the ways one pressurises the left-fingers that hold the notes. This view is supported by the simultaneous indications of *flautando* and *sul tasto*. Despite the fact that *flautando* and *sul tasto* are often used synonymously to indicate a 'muffled' sound, a strict observation of *sul tasto* can make it possible to produce a sound that can be closely related to the flute, by means of bowing exactly at the half way length of the string, without obscuring ('muffling') the sound itself.[88] However, this cannot be done in the circumstances of these two notes, because of the large difference in the length of the strings on which the two notes are fingered. The given indications comprise attributes that contradict each other, and in this way it demonstrates a case where the conceptual specifications are not leading literally to the identification of their timbre: an obedient execution of these indications is a senseless one, if not an abuse of the effort of the producer.

This suggests that the given indications should perhaps be understood as the result of a suggestive effort rather than of an instructive one.[89] The attempt of the producer is confined to the minimum by the very images to be specified, because conceiving the inconceivable contradicts the nature of the energy in music. A suggestive effort does not mean vagueness: rather, it specifies the types of sound found in musical practice which partake in the cognitive approximation of the images. Indications are empirically derived means of expression to communicate these images intelligibly, and consequently their intelligibility may not always be logical.

The space of interpretation is therefore a broad one. Imagination broadens this space, and every attempt at doing so defines gradually the area in which

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[88] When bowed exactly at the half way length of the string, it produces a smaller number of harmonics, hence its character closer to that of the flute. However, the vibration structure of a bowed string depends heavily on the bow speed and pressure that creates the frictional force in playing. The *flautando* technique determines this aspect of bow movement more than any other: the bow must move with the minimum degree of frictional force on the string (without loosing the sound).

[89] It may be argued that, for example, the pitch is not a suggestion but a definite instruction. However, we are then dealing with a parameter where images are directly referable to fixed values. Many descriptive parameters have fixed values (such as instrumentation and metronome markings) and that may explain the reason why some musicians consider notation to be a fixed set of instructions.

imagination can agree with realistic applications. For example, should the above sound involve vibrato or not? Introducing vibrato cancels the above mentioned manner of producing the *flautando / sul tasto* sound, although it has the advantage of controlling the harmonic balance between the two notes. Despite the fact that there is no indication to use it, vibrato may well change the character of the timbre more effectively than some of the descriptions here. It may produce what is generally called a 'warm' sound. What about the speed and pressure of the bow? Theoretically speaking the *flautando* marking determines this dimension, yet in practice the main restriction comes from the playing of two notes at *ppp*, the suggested effect of which is somewhat different from that of the *flautando*.[90]

There are many contradictions that invite us to doubt whether the indications are correctly employed. However, questioning the appropriateness of using these indications misses the point. If the indications are the facts whose existence preceded that of the images, the argument is legitimate.[91] Appropriateness in the use of indications is actually a question of custom, and although the knowledge of this custom is an important premise in Western musical practice, we need to acknowledge the fact that an inappropriate notation (or a score that doesn't seem to make sense) doesn't always impoverish the vitality of images. Musical images often surpass such technical difficulty. Therefore the question of appropriateness doesn't necessarily address the question of the approach in which the constituent qualitative elements can be identified. This also leads us to reconsider the appropriateness attached to any instance of representation, be it a set of indications or a cluster of sounds, whether it is at all possible to be ever *appropriate* in expressing the images that they are supposed to do. This will be discussed later.

Coming back to the above example of realising the indicated sound, it must be mentioned that these concepts are related to many other levels of organisation, and isolating this sound as such a small fragment without a proper context is unfair.

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[90] The ideal bowing point for the two notes to be heard clearly at *ppp* and that for the same notes to have the *flautando* effect do not coincide. It is due to the difference between the spectral parameters to which the instrument responds individually if an acoustically perfect rendition is required. There is an area where all the requirements can be met, however, it will not satisfy them equally and inevitably be left to the matter of 'overall' effect.

[91] Even when a work is not meant to impart images – mainstream minimalist compositions can be considered as examples – the quality of images is still predominantly felt in every representation of the work because a musical representation presupposes necessarily the existence of images within it. It can be argued whether the facts control the images or the other way round. The expressivity of such a compositional design may depend largely on the proximity between the two.

Nevertheless, this isolation already shows a microcosm of a network of signification with all its ambiguities. The above description of practical details suggests that the area of the shared qualitative elements may need to stretch infinitely further to include more elements that are equally likely to be attributed to the *genre* of this sound. The necessity to include this extended area is vital, since the dynamism of images is at the root of this sound, and to fix their quality is to defy its timbre. These deducible and imaginable elements – however contradictory to each other – are important for the rendition of this dynamism.

Despite our curiosity to find out the exact composition of images, its analysis should not be given too great an importance in the present discussion, in view of the significance the sound has as a musical timbre. It is hard to think that images can be expressed as a timbre, unless they are genuinely synthesised or integrated into one. This observation leads to a shift in the question of what should be understood foremost in musical images. The specificity of images exists only by virtue of the way they are articulated. Coherent links between concepts can strengthen the expressivity of timbre because they keep the concepts perceptually close to the images. The extended area of ambiguous and contradictory elements provides a space in which intuitive power operates in order to capture the images in a manner most expressive as a timbre in the given context. What timbre articulates through the interpretant's understanding of the concepts within the space of the expressible are the images, despite the fact that they may differ at every instance of representing a work. The ambiguities and contradictions keep us questioning the concepts continually and stimulate the vitality of our imagination, and this vitality relates itself to that of images. Thus, initial images are identified with the extent of the imaginative operation of the intuitive subject, and defined as possibilities that can be reached by the subject (the interpretant) and tenable as a timbre. These images specify only a general area of the qualitative elements without boundaries. The non-fixability of images is the source of their dynamic power, as well as the source that gives the vitality to timbre and to our imagination. Timbre is a resisting of images from evaporating into conceptualisation.

> The flame consists of a splendid clarity, of an unusual vigor, and of an igneous ardor, but possesses the splendid clarity that it may illuminate and the igneous ardor that it may burn.[92]

The above words by Hildegard can be interpreted in a specific way: that a flame has extraordinary characters but their virtue of existence depends on the way they are employed. The extraordinary properties of light and fire are attributable to the three elements of the flame. This symbolic apparatus can be applied to interpreting musicality of music. Perhaps a work of art expresses images in our efforts to capture them, rather than in our efforts to realise and communicate them. Here the pre-eminent issue becomes how, rather than what, the work expresses. Although the properties of light and fire may be extraordinary, the most fascinating thing is the way in which the three elements come in contact with humanity. Whilst the consequence of this contact leads to the production of light, fire, and ever greater resources, the unique nature of the flame is all the more recognised. Musical images may be understood in a similarly subversive way: by means of our ongoing efforts to capture them (but not capturing them), we recognise their potential power, their nature, and the volatile link between them. It conveys the dynamism of the images in a similar way in which musical timbre does its own dynamism.

This is to say that to some extent the musical content, or the focal point of musical existence, lies in the process that articulates it. The real content, the images, is something perceptible but perhaps meaningless to us. We shall never know the real content – therefore one cannot say that music has no content – and in this respect, diligent attempts at responding to what is thought to be the content is all that matters. This attitude also corresponds to the reason why music is not only a scientific subject. Music requires diligence and vigilance on our part (without any moral connotation), with the aim of *our* serving *it* more than *its* serving *us*.

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[92] 'Flamma enim splendida claritate et purpureo uirore ac igneo ardore consistit. Sed splendidam claritatem habet ut luceat, et purpureum uirorem ut uigeat, atque igneum ardorem ut ardeat.' (Hildegard of Bingen, *Scivias*, edited by A. Führkötter and A. Carlevaris, Corpus Christianorum Continuatio Mediaevalis 43, Typographi Brepols Editores Pontificii, Turnhout, 1978, p. 128.) A direct translation of this original Latin: 'A flame is made up of brilliant light and red power and fiery heat. It has brilliant light that it may shine, and red power that it may endure, and fiery heat that it may burn.' (Hildegard of Bingen, *Scivias*, translated by C. Hart and J. Bishop, Paulist Press, Mahwah, New Jersey, 1990, pp. 161-165.) However, I have chosen a secular translation of the text (quoted in Umberto Eco, *Il nome della rosa*, Fabbri-Bompiani, Sonzongo, 1980; *The Name of the Rose*, translated by W. Weaver, Minerva edition, Mandarin Paperbacks, London, 1992, p. 239) which articulates most appropriately the nature and property of heat and light, which makes it more relevant in the present context.

III. Controlling timbre

1. Towards a pragmatic analysis of the function of some timbral parameters

The continuity of acoustic identity in varying contexts

In the teaching of Japanese music, a master passes on the art of practice by giving lessons orally to a very few selected pupils. Many scholars attribute the origin of this enclaved attitude towards teaching to that of Buddhist teaching, where the 'basic principle of education and the manner of practice rested on self-enlightenment by pupils rather than teaching them'.[93] In addition to this, it is considered that music features spiritual qualities (such as grace) which are by definition not a property of the secular world. Out of these factors emerges the idea of acquiring skills through spiritual training, and it has lead to a development of a particular form of tradition: a hereditary system is the way in which many styles of practising fine arts have been maintained in Japan up to this day. The virtue of filial obedience (which is the cardinal teaching in Confucianism) strengthens the appropriateness of inheriting the legacy of ancestors, and the resulting social and spiritual agreement between the two major Asian philosophies has firmly established the hereditary system as tradition. Teaching the heir is one of the most important tasks the master ever undertakes – it amounts to the preservation of a tradition and the survival of its art.

One of the most significant aspects of Japanese music teaching is the total subjugation with which the pupils relate themselves to their master. Harich-Schneider points out the differences in teaching method between the Western and the Oriental thus:

> The Western teacher believes in an educational principle leading from an inner understanding to the exterior activity; he gives the principles and expects the pupil to develop these principles in an individual manner in his own, independent, artistic utterance.

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[93] Eishi Kikkawa, 'History of Music Education in Japan', *Ongaku Jiten (Music Dictionary)*, Volume II, 1955, p. 90; cited in Elizabeth May, *The Influence of the Meiji Period on Japanese Children's Music*, University of California, Berkeley, 1963, p. 22.

> The Oriental believes in the reverse method: from faithful and literal imitation of the teacher in all exterior manifestations the final understanding of the principles will gradually emerge.[94]

The Japanese educational manner has a strong link with the customs of the feudal past. The prevalence of exclusivity represented by different 'schools' (of performance style) can be explained by sectarian monopolism, and the formality by collective discipline. Although these circumstances have most likely affected their educational principle, it can also be argued that the unique quality of their practice has been the most vital influence in determining the principle.

What exactly is inherited in this hereditary succession? Once permitted or chosen to enter the vocation, there is a long strict course for the pupils to follow. For the master the teaching includes demonstration by playing, verbal explanation, and dissemination of oral literature about music, and for the pupils memorisation and imitation. The goal for the pupil is to be just like the master in everything. Nevertheless, it is soon to be realised that becoming a replica of the master is not the ultimate goal – it is only a goal in the first stage of succession.

Rote-teaching has been generally criticised in the West as being likely to prevent pupils from developing originality. However, by teaching a work as a conceptually undivided whole, the method provides an opportunity for an hermeneutic approach towards the work – this constitutes the second and more significant stage of succession. It is an issue that has to be discussed separately, and at the moment suffice it to say that rote-teaching has one advantage: a specific presentation is preserved as a *type*. Here a type means not only a set of features but also an overall identity. Together with the repertoire and stylistic conventions, what is inherited is this identity of performance practice. The second stage of succession has a crucial importance in amalgamating the various elements of practice with its identity as their focal point.

A type then needs to be recognised in the person who practices it. The smaller the number of persons associated with a type, the closer the relationship between the subject and object – so that the practice and practitioner are, at any given point in history, always identifiable as one and the same thing. The artistry of the practice is tantamount to the authority of the practitioner, because it lies in the

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[94] Eta Harich-Schneider, *A History of Japanese Music*, Oxford University Press, London, 1973, pp. 547-548.

effectiveness of the ways in which the chosen persons identify their human uniqueness as an individual with that of the practice.

A succession in this manner can take a lifetime. Nevertheless, once the succession is complete, there is no question of authenticity – not because the successor is the only one who represents that particular art, but because the singular mode of inheritance (from one person to another) is essential in defining the identity of its practice. This is to say that the changes of personnel may modify the qualities but maintain the identity. There is only the difference between stronger or weaker renditions of that identity by different generations. The identity is not the sum of the features but the ever transforming whole which embraces them.

The history of such art follows the history of its practitioners. Nevertheless, considering the fact that the continuation of many art forms in the world is still being carried out in the hereditary system, the successful cases shed light on the ways in which performance practice in general can be conveyed in its entirety. There are some characteristics that are common to all successful ones. One of them is the qualitative link: of the many different ways of succession from one practitioner to another of the same discipline, the hereditary system provides perhaps the strongest qualitative link between two persons in performance practice around the world. However, their practice also suggests that the relationship between the interacting two persons is largely of a social kind rather than that of resemblance.[95] This invites the question of how two practitioners can collaborate towards better comprehension of the quality of musical sound.[96]

In the production of Western music, notation provides a standard that determines the approximate measure of quantitative elements. The comparison between the two musical traditions tells us that the role of notation and other ways of conceptualisation are often similar, but are greatly different in the degree of specificity attached to them. The function of what are taken to be cardinal concepts in Western music finds itself submerged under a unique humanist view so prevalent

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[95] A succession of this kind is often carried between blood relatives. However, there are examples where the family adopts an heir and brings them up as their own child. This suggests a view that the significance of kinship develops according to the increase in their social relationship rather than their genetic similarities. It follows that a succession of qualitative elements may also be an issue of cultivation rather than that of personal inclination to a considerable extent, as is the case in dealing with quantitative elements.

[96] Here the word 'collaborate' is used not only for a literal working-together, but also a mental one with the use of imagination.

in Asian philosophies. It can be best summarised in an epigram from China – the country whose thoughts have greatly influenced every culture in Japan:

> The purpose of notation is to guide the blind,
> However, one should not be blinded by the notation.[97]

This chapter deals primarily with the production of musical sound, that is to say the musical timbre encountered in performance practice rather than in composition. It aims at clarifying how the identity of a specific timbre can be maintained from its conception by the composer to its realisation by the performer. A particular focus is given to the issues involved in the realistic instances where composition and performance interact. The examination thus concentrates on the practical means through which some timbral parameters are dealt with among composers and performers.

The identity of a sound, and its timbral parameters and technical actions [98]

The above example of Japanese musical practice illustrates a way in which musical quality diverges in every representation. Although the meaning differs greatly from one music to another, performance incorporates variety as a means of preserving identity in every musical practice. The variety within different representations is a vital fact in recognising the artistic significance of any performance practice.

Although the identity of a musical sound may not yield easily to analysis, it contains definite features, and they can be analysed through timbral parameters. Of those parameters involved in a musical sound, pitch is the most mathematically organised dimension (and therefore the most logical and universal) producing least variety when executed by performers. The dynamic may seem a stable parameter, though its execution differs greatly according to the size and range of amplitude available to performers. Many other parameters demand an individual attribution to different instruments and persons, and a consideration from the point of view of each

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[97] Shen Congsui, *Dequ xuzhi*, 1640; *Gudian xiqu shengyun lunji chongbian (Collected Essays on the Vocal Music of Classical Drama)*, edited by Fu Xihua, second print, Music Publication, Beijing, 1961, p. 92; cited in Liang Mingyue, *Music of the Billion: an Introduction to Chinese Musical Culture*, Heinrichshofen Edition, New York, 1985, p. 185.

[98] The word 'sound' is used in terms of general musical sound, implying a sequence or group of sounds as opposed to silence, rather than a solitary occurrence of sound.

instrument and each person. Do so many diverse systems of measurement help our understanding of what is, ultimately, the identity of a sound?

Because of the fact that so many different parameters are interlocked to constitute the identity of a sound, a spectral analysis of selected parameters may easily lead to their isolation from the others, resulting in a futile disintegration of the timbre. Nevertheless, when considering the identity of a given sound as a type (thus allowing the qualitative variety within), the analysed features articulate themselves in a particular way: the analysis then suggests a type of potential identity which the nominated features can contribute to formulate. This leads to a proposal that a timbre should be understood by means of these parameters, *but not in terms of them.* Hence the criterion for timbral parameters should always be considered as relative and partial. The variety found within each parameter can lead the interpreter to create a unique sound without losing its characteristic identity, but can also upset the identity within which this parameter is integrated. We may therefore see the variety within each parameter as a constituent force in producing the difference in its executions. The aim in analysing timbral parameters is to recognise the range of variety *relevant* to the context in which the identity is maintained.

In the practice of Western music it is thought that the composer largely determines the timbral parameters in a work, but this is certainly questionable – since the idea reduces the performer to a mere executor. It can be argued that more timbral parameters are in fact manipulated by the performer. It must be recognised that technique denotes precisely this manipulation.[99] All the parameters (and indeed the entire performance as representation) are realised through physical technical actions.

Technique can be differentiated by its characteristic actions into groups. The following analysis proceeds in these technically differentiated groups, as this allows the maximum data of practical information to be examined. The acoustic source of the given instrument largely determines the structure in which groups of technical actions are related to each other. For example, the acoustic centre of the violin is,

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[99] Good and bad performance is often considered synonymous with good and bad playing. It is possible to hear a reasonably played bad performance (meaning a bad interpretation) but rarely possible to hear a poorly played good performance. This suggests that the distinction of good and bad playing takes place before that of good and bad performance. Thus playing (technical manipulation) subordinates performance rather than vice versa. Technique can be understood as a resourcefulness - the expressivity of musical ideas heavily depending on the means employed for their articulation.

indisputably, the string. Its vibration under the fingers or the bow is the foundation for establishing the identity of the violin sound, and that includes also the problems the string vibration forces the player to solve. Therefore the technical actions that have direct contact with the strings play the greatest role in determining its identity.

It may be argued that so-called extended technique adds further parameters and thus challenges the identity of that particular instrumental sound. Although it challenges the normative boundary of the timbral spectrum of the instrument, it must be said that what the extended technique explores is all derived from *within* the spectrum of the instrument. For example, when we hear a violinist bowing on the edge of the violin (which is considered to be an extended technique), it draws our visual attention to the body of the instrument as well as our aural attention to the sounding box. Despite the fact that the sounding box forms an important part of the acoustics of the instrument, we are often unaware of its function because the affectivity of actions taken on the string is far greater in conveying the identity of the violin sound. Thus the technical action taken on the body is an expression of a timbral parameter which acts on a less prominent acoustic source of the instrument, but which strengthens the overall timbral identity by redefining the framework of perception from within. Anything producible on the acoustic instrument must have contact with at least one of the physical parts of the instrument, and is therefore a constituent part of the spectrum.[100] Whilst all the physical structures of the instrument affect the spectrum, their effect within the spectrum varies proportionally according to two forms in which action is taken: the amplitude innate in the construction of a given instrument, and the relative import given to timbral parameters by means of composition and performance. Extended technique doesn't transform the instrument's identity – it only changes the boundary within which we perceive the identity.

The following discussion concentrates on the aesthetic effect of the spectrum, rather than examining the spectrum itself in close detail. For this it may be necessary to clarify the difference between the spectrum and the identity of a sound. In short, the major difference is that the spectrum does not amount to the identity:

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[100] The effects produced by using a mute or amplifier change the spectrum by means of adding external materials. They are often considered to be transformations, but can also be seen as extensions to the spectrum - since the materials are added to the instrument (and its spectrum) itself. However, these are not specifically considered as techniques in performance practice because the added material is not an agent which the performer manipulates.

the latter is something we recognise through what we hear, a notion of the sound. This suggests that the spectral changes do not necessarily affect the identity of a sound. Identity depends upon our consciousness of the matter – in other words, the identity may change without any significant changes in the spectrum. Historical and cultural circumstances weigh heavily upon identity, whilst they don't upon the spectrum. Furthermore, the question of identity cannot be separated from the question of human perception – which stands farther away in the opposite direction from the objective analysis of the spectrum.[101] Whilst what a spectrum analysis tells us is very important and relevant, the following discussion addresses the question of identity as a central force in responding to the issues of performance practice.

Technical actions can be classified according to the following criteria for examination:

1) The acoustic affectivity of the parameter (which an action initiates) on timbral identity
2) The proportional difference between this affectivity and our awareness of it in the present day musical discourse
3) The degree of affectivity controlled by the performer for an appropriate realisation of the identity

Since the string is acoustically the most affective area of the violin, the present discussion principally considers those actions which take place on the strings. These divide themselves largely into two kinds of actions: one performed by the right-hand, and the other by the left-hand. In most instances the two happen simultaneously, but they can be separated initially for theoretical examination to clarify the dimension of individual parameters.

The following table shows some frequently used technical actions in these two categories. They can be further divided by their characteristic effect into different groups.

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[101] Maurice Merleau-Ponty argues that any sense experience (which music is) must count the pre-objective realm of perception. With the example of 'sensation' he asserts that a sense experience 'is sometimes the adherence of the perceived object to its context, and, as it were, its viscosity, sometimes the presence in it of a positive indeterminate which prevents the spatial, temporal, and numerical wholes from becoming articulated into manageable, distinct and identifiable term' (p. 12). I have no intention to discuss further the point that 'science succeeds in constructing only a semblance of subjectivity' (p. 11). Nevertheless, in a question of timbral identity we necessarily regard the intricacies involved in the musical experience as an important but problematic part of its perceptual apparatus, for the identity as discussed here denotes precisely something more than the perceived. Maurice Merleau-Ponty, *Phénoménologie de la perception*, Gallimard, Paris, 1958; *Phenomenology of Perception*, translated by C. Smith, Routledge, London, 1962.

i. Actions taken by the left-hand

Articulation	degree of pressure, manner of contact (hard, soft), fingering, causal manner (slapping, tapping, damping), left-hand pizzicato, etc.
Intonation	fingering, vibrato, glissando, portamento

ii. Actions taken by the right-hand

Horizontal	speed, pressure, attack, portato, staccato, spiccato, ricochet, pizzicato (including strumming), col legno battuto / tratto, etc.
Vertical	position, direction

It is immediately noticeable that some actions are more central than others in conveying the identity of the violin. The left-hand actions of intonation (particularly the pitch) have a strong affectivity, as well as the right-hand 'horizontal' actions (particularly the speed and attack) which are customarily called bowing techniques. These are actions whose variety sometimes affect the spectrum only to a small extent but can greatly affect identity because their expressivity possesses a power to articulate music to a considerable extent. However, there are also actions which affect the spectrum greatly and have all the potential to affect identity, but of which we are hardly aware because of the indifference our musical discourse exhibits towards them. Intonational inflection is a good example of the second case, while pitch is an example of the first. One may summarise this variety as a question of pertinence, of how a given musical discourse deals with a given expressive resource.

It may also be argued that the relationship between the acoustic affectivity of a parameter and its centrality in our musical thinking (awareness) varies from person to person, and therefore speculation over this relationship is a futile effort and might even lead to prejudice towards an originality of conception. My suggestion is that, on the contrary, better understanding of the question of where a particular parameter situates itself within the present musical discourse should invigorate our imagination into a new area – in which the variety of a parameter becomes incorporated into a

new expressive language. It can also stimulate the present understanding of the technique and its employment, leading to a reconsideration of performance practice in the existing repertoire. Individuality in this way serves to expand the musical discourse, not to create an antithesis between the one and others within it.

In Western music this question about the degrees of affectivity (which the performer determines through technical actions) depends heavily on the role of notation in performance practice. The above example of pitch and intonational inflection is a case in point. Those parameters that are (or can be) dealt with via notation are produced by the composer, whilst those parameters that are not (or cannot be) notated are provided by the performer. As a consequence of this, it often happens that the parameters which the performer is usually expected to decide are crudely written by composers, and the parameters which the composer is usually expected to indicate are erroneously executed by performers.

The following selection reflects a view from a performer in considering what technical actions seem most urgently in need of re-examination, where one finds pervasive discrepancies between the affectivity of a parameter on identity and the current performance practice of the technique. The discussion thus starts off with the question of what power the performer has in determining the effect of a specific parameter – the third criterion given above – then moves back to the first, and then to the central question of identity. The first two sections deal with those actions manipulated by the left-hand, the latter two by the right-hand.

2. Vibrato

Vibrato as an expressive technique

There can be no sound without vibration because of the fact that any source of sound must be set in vibration in order for the sound to reach the ear. The term vibrato stands for a technique that produces an artificial vibration in addition to the already vibrating string.[102] Vibrato operates on many levels. Three types of vibrato are most frequently encountered: intonation vibrato by moving the finger up and down in parallel direction to the string, articulation vibrato by moving the finger up and down and side to side, and bow vibrato by moving the bow up and down and alternating it fast and slow.[103] During the course of history there have been only a few periods when vibrato was considered to be a integral part of the compositional design.[104] Otherwise the use of vibrato is either out of the question or left to the performer's discretion. The fact that vibrato is seldom notated in the score (and that the method of indication is rather primitive) has lead contemporary performers to consider the technique as a parameter that is to some extent independent from the music they play. That is to say that the decision over the affectivity of vibrato on the sound can be made solely for the consideration of the sound projection.

Most violinists are very much aware of the advantage of having a good vibrato technique – similar to the advantage of having a good instrument – although not necessarily knowing why. The timbral affectivity of this technique is instinctively understood, although our awareness of it in the musical discourse is an ambiguous and obscure issue. Hence, the following sections analyse the function of vibrato in various instances in order to clarify the ways in which it affects the discourse and determines the timbre.

Ideas about how and where vibrato should be executed are found mostly in educational rather than interpretative writings. A new approach towards performing

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[102] Alternatively, vibrato can be described simply as a perceptible fluctuation on a single note in performance.

[103] In this section the first type of vibrato is mainly discussed as this is the only type that operates mainly on the left-hand intonation (pitch parameter) level. The second type operates on both the intonation and left-hand articulation levels whereas the third type (bow vibrato) on the level of right-hand expression.

[104] Many observations about the historical employment of vibrato are drawn from the detailed study of the subject conducted by Clive Brown in his seminal book on the Classical and Romantic performance practices. Clive Brown, *Classical and Romantic Performing practice 1750-1900*, Oxford University Press, Oxford, 1999, pp. 517-557.

techniques developed at the beginning of the twentieth century (vibrato was one of the most affected) and this has played a crucial role in determining the ways in which we practice them. The new doctrine emphasised greatly the physiological correctness of playing action. Indeed this is certainly a good and justifiable way to secure a solid foundation. Nevertheless, there is a danger of rendering the technique somewhat comparable to that of a sportsperson. The discussions on vibrato have been too narrowly subjected to the analysis of its mechanical function. This tendency has been accelerated by a long-standing convention of separating the technical from the musical in the pedagogy of violin playing – because the violin is considered to be a relatively difficult instrument to learn to play. An example of this new attitude – mingled somewhat with the old belief – can be found in the treatise by Siegfried Eberhardt, who carried out the first substantial investigation into vibrato in 1910:

> In playing the violin, the problems of technique are made more complicated by the fact that each arm performs a different function. . . . it is strange that one function of the left hand, and the most important one, has rarely been mentioned. . . . I wish to call attention to a point which is of the greatest importance to the whole technical apparatus employed in playing the violin. I will say at once, however, that we are concerned here with a purely technical problem, and not with the interpretive side of playing, nor with the declamation of an art work. . . . It is time that we finally determine what belongs to the spiritual side of music, and what, in contrast thereto, belongs alone to the technique of playing.[105]

The importance of vibrato as an expressive parameter is recognised only within the scope of the technical apparatus. This view influences greatly the aesthetic value of the technique. Eberhardt's way of separating the instrumental playing from the music itself confirms this preconception that vibrato is something which belongs entirely to the realm of aesthetic beauty and taste. With the phrase 'the spiritual side of music' he gives not only a distinction between composition and performance as abstract form and phenomenon, but also creates a hierarchy in which composition dominates (so that the expressive mechanism of performance should be utterly subservient to it). Here the *co-operative* interaction between composition and

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[105] Siegfried Eberhardt, *Violin Vibrato*, Dresden, 1910; translated by M. Chaffee, Carl Fischer, New York, 1944, p. 2.

performance technique is neglected, and the musicality of vibrato is left (rather than entrusted) to the instinct and feeling of the performer.

In contemporary performance practice vibrato is often understood as merely adding an intonational vibration to the string. If this was the case vibrato would have a single function of superimposing an oscillation that is wider than the intonational frequency of a given pitch. However, vibrato can be conceived as a much more versatile technique, having various types and multiple layers of effectivity in different contexts. This technique was originally introduced for producing a particular effect by virtue of its acoustic uniqueness, with a function to affect both the timbral identity and music itself. The expressive effect of vibrato may be merely a stimulation of the nervous system, acting directly and not through any logical function. However, vibrato is a device that is culturally assimilated in music, so part of its effect is due to a learned convention. The historical observation of vibrato provides some information in this respect. It demonstrates that a new way of coding perception can be *invented*, as well as that of ratifying it through performance.

Historical examination of vibrato

Vibrato alters tone quality and affects feeling. The difference between the two functions is that of the levels on which they operate. In contrast to the fact that the altered effect of vibrato on tone quality is relatively predictable, the musical affectivity of vibrato is more varied and unpredictable, and furthermore changeable in historical time. Acoustic facts alone do not suffice to explain the changes in musical preferences. This section discusses the function of vibrato from a historical perspective and examines the development from one type of vibrato to another. In so doing we analyse a historical thread between types, and the way in which technique perpetuates idiomatic variability.

The transformation of the technique and its idiom involves composers no less than performers. With the production of a new composition, an existing performance technique can be employed for a new expressive function, and as the new expressive use becomes more practised it gradually modifies the function of the technique and

consequently changes the expression itself.[106] The following classification of the history into three periods aims at highlighting the individually characteristic functions vibrato has

1. from the founding of the instrument to its modernisation (circa 1800)
2. the nineteenth century and before circa 1920
3. after 1920.

In the music written in the first period, vibrato was primarily applied for two purposes: to ornament melodies and to beautify the tone.[107] The model was undoubtedly the human voice, and the violin vibrato was a careful imitation of what the voice employs in a dramatic expression – controlling physical tension through vibration.[108] Vocal vibrato is produced by a specific movement of the vocal folds: the vocal vibration is produced with the part of the human body which also produces and controls many of the other timbral parameters in singing. Violin vibrato is produced by the left-hand while the principle part of the body of sound production – the one which sets the string to vibrate – is the right-hand. This indicates that there is no physiological proximity that links vibrato to the sound in violin playing. This functional separation makes violin vibrato a more contrived and artificial technique.

The violinist analyses the purely acoustic property of vocal vibrato and develops it into an additional (rather than derived) technique. As an ornament, vibrato is used on the level of articulating the narrative expression in music, whilst as a means of beautifying the tone it is on the level of timbral improvement. In both cases the employment is traditionally left to the performer's discretion, but the latter

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[106] Instead of an existing one, a new performance technique can be employed for an existent expressive function, and a similar consequence occurs: as the new technique becomes more practised it gradually modifies the expression and consequently changes the function of the technique. Vibrato is an example of an existent technique being employed for a new expressivity. An example of the second case is the use of spiccato: when a performer attempts to play a series of fast repeated notes in staccato articulation, they often employ the spiccato technique to ease the tension and regulate the control over the bow. Staccato denotes both the technique and articulation whereas spiccato only the technique. Therefore one may argue that staccato articulation is replaceable by spiccato technique. However, through the pervasive use of both techniques for the same articulation the use of staccato articulation has become diminished to mean merely a separation between the notes. The function of staccato markings as accentuation was a common practice earlier in the history of violin playing, but is rarely found in contemporary practice. Thus 'an alternative way' of achieving an artistic expression often changes the significance of expression itself. For the function of staccato markings as accentuation see Robert Donnington, *The Interpretation of Early Music*, Faber, London, 1963; newly revised edition, 1989, pp. 495-496.

[107] See the statements by Mace and Mozart (in favour of the function as an ornament) and Mersenne and Geminiani (in favour of the function to beautify the tone) in Appendix I.

[108] This phenomenon is general and we often encounter it in everyday situations. Shaking caused by nervousness is an example: under a stressed condition we often discover shaking not only in the hands or legs but also in the voice. Such shaking works automatically like a safety-valve to release and control the bodily tension.

in particular presents an instance where the use is not always recognised in the theoretical discourse in music – because it is inextricably linked with the acoustics of the individual instrument – in spite of its tremendous affectivity. By producing a better resonance out of the instrument, this type of vibrato articulates the physical harmony of the sound which may be particular to that given instrument. Such acoustic harmony can complement the harmony of compositional structure when it is used appropriately.[109]

Although the distinction between the first and the second periods is never clear as the Classical ornamental use of vibrato continued right to the end of the nineteenth century and in the twentieth century, in the second period the newly found function of vibrato is focussed on its role in the dramatisation of musical narrative. The development of the vibrato function in the nineteenth century overlaps with the increasing number of compositions written for the violin, and as a result of this the dramatic use of vibrato is still widely appreciated and considered as a norm in contemporary practice. This development corresponds to two historical factors: the first is the changes in instrumental construction, and the second is the development of Idealism in nineteenth century European culture including musical composition.[110] Amidst prevailing Romanticism the use of vibrato became influenced by ideological ideas where the technical device can help create 'transcendent' expression in music, and thereby vibrato is used 'as the consequence of a heightened need of expression'.[111] Vibrato became an expressive technique that offers a contribution to the metaphysical meaning beyond its simple acoustic effect.

The third period starts with an emergence of a highly developed type of vibrato which is almost continuously employed throughout the piece but at the same time can still dramatise the musical narrative. The functional intention of continuous vibrato is to beautify the tone. The difference between the pre-nineteenth century use and Eberhardt's (quoted earlier) is that, although both intended to invigorate the

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[109] The power of this mutual reinforcement in conveying harmony can be attested by the fact that there are more pieces written in the key of D than any others for the violin. This can be explained by the fuller resonance that can be achieved in this key. D major and minor scales use the open string notes (G, D, A and E) at the crucial degrees within the diatonic scale system.

[110] For the purpose of producing greater power and of accommodating partly a higher concert pitch, some modifications were made gradually over the turn of the nineteenth century. The major changes were: the bass-bar was lengthened and made thicker and stronger, the diameter of the soundpost increased for added strength, and the neck thrown back and mortised into the top blocked to cope with the increased longitudinal tension. The newly modelled violin was complemented by the newly designed, strong convex bow.

[111] See the statement by Flesch in Appendix I.

correspondence between acoustic and compositional harmonies, Eberhardt did not realise the fact that the relationship between acoustics and composition had changed – the musical discourse could sustain them no longer on the same level as it did before the nineteenth century. A peculiar consequence followed its initial development. Continuous vibrato took on an artistic perfection that is comparable with the role of ornamentation in Art Nouveau: the technique previously subordinate to the expressivity of music (or architecture) became highly stylised and acquired a possibility of aesthetic independence.[112] Technical expressivity became equal to musical expressivity and this equality caused their disintegration rather than their intended integration. To this day efforts have been directed towards the preservation of these disintegrated, individually expressive parts, with little understanding as to how to correlate them again. The continuity of vibrato has developed into a technical principle in contemporary performance practice and raised itself to be perhaps the most prominent function which violin vibrato has nowadays.[113]

Thus the function of vibrato is largely determined by a broader cultural context in which composition and performance practice are to be seen together. After all, it must be remembered that performance and composition have developed next to each other – rather than performance following composition or vice versa. The relative independence of vibrato-functions in relation to compositional structure only increases its dependence on the cultural preconception of how vibrato *ought to be* expressing the musicality of a work. This articulates an aspect of the perceptive nature of vibrato as a social phenomenon, and varied vibrato-functions can be understood in the light of semiological codes. The following table shows this:

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[112] Art Nouveau was followed by Art Deco, and the process between these two styles provides an interesting parallel to the functional disintegration of design (or technique) into the architectural ornamentation (as part of the whole) and ornamentation for the sake of itself (NB Art Deco is not considered as an architectural subject). Art Nouveau was first and foremost an aesthetic undertaking, based on social theories and inspired by aesthetes such as Ruskin, Morris, and Wilde. In architecture and design, the disintegration was prevented by the movements in the 1920s, such as the Bauhaus and Russian Constructivism. Musical composition and performance saw some re-examination of discourse and new means of integration around the same time (such as the 'authenticity' movement in the performance practice of early music), but had a less overall effect.

[113] See the statement by Galamian in Appendix I.

	relation to composition	expressive nature
vibrato that beautifies the tone	by resemblance	the quality of the tone
vibrato that expresses the feeling of the content	dynamic	the ability to identify the feeling
vibrato that is continuous	symbolic	being a code

The expressive nature accounts for the qualitative nature of each type of vibrato. Viewed from the Peirce's model of signification (as dealt with in Chapter II) these three types can be considered respectively as a qualisign, a sinsign, and a legisign. The model illustrates that when the types of vibrato are historically more recent, the less immediate (or more abstract) their semiotic function becomes in relation to both the compositional structure and expressive nature. This conforms with the speculation that a new type derives its code by interpreting the old: postulation of the existent code is a condition for the creation of the new. A cultural sophistication means an increase in the degree of complexity and specificity, and this accelerates the coding system to develop into a more seemingly abstruse direction. As seen here the first type of vibrato (that which beautifies the tone) is a most self-evident and simple type that requires very little effort to understand how it functions. The continuous vibrato on the other hand is constantly in danger of losing (and perhaps has already lost) significance in relation to compositional structure, due to having a high complexity in its expressive signification.

Continuous vibrato has a function to beautify the tone at its root. The uniqueness hitherto unseen of this vibrato is that this function must be understood as a token. It plays on the pre-existing code that beautiful tone means harmony of musical structure. It is only the existence of this intermediate code that can justify the aesthetically meaningful relationship with musical structure. The necessity of this intermediate stage makes the function of continuous vibrato highly symbolic and particular, and it is indicative of how our historical/cultural perception is integrated in understanding musical text and timbral identity. However, such narrow specification also raises the likeliness that, instead of enhancing the expressivity

relevant to the music, continuous vibrato is perceived as an indulgence into acoustic pleasantness.

One could argue that acoustic expressivity is sufficient to influence the musical timbre because the oscillation itself is expressive. The production of beautiful tone (with the use of continuous vibrato) has no doubt a fundamental importance in violin playing because of its capacity to stimulate the nervous system. However, any intonation (in this case that of vibration) looses its expressiveness by being over-used and it is the continuity itself that denies the oscillation being heard as expressive intonation. Expressivity of musical timbre operates not only on the acoustic level but also on the semantic level, and therefore the acoustic expressivity of continuous vibrato falls short of universal validity.

Continuous vibrato provides an insight into the ways in which musical expressivity can be coded, and provides information for possible development. This is a type that may be applicable only to a specific style of compositions: they must possess a coding system which requires a similarly predetermined ground of perception. It is, however, necessary to remark that continuous vibrato retains some meaning in any musical timbre on the violin in present performance practice. Two explanations can be given for this: continuous vibrato was developed in conjunction with the improvement of techniques in general, and this fact suggests that many techniques on the violin are related to the use of this vibrato. Secondly, continuous vibrato has been employed for a considerable length of time, and has come to be the ideal sound on the violin in the contemporary pedagogy of violin playing. This holds true to the extent where non-vibrato has become a special effect. Today violin playing without continuous vibrato is still considered special and marginal – the fact proves the hypothesis that what most listeners regard as the expressive sound of the violin is the one with continuous vibrato.

Perhaps the best examples of a successful integration of this vibrato into musical expressivity can be found in the playing of well-known violinists around 1920. Notably, their playing also shows a synthesis of continuous vibrato with many different techniques, most of them newly found around the same time.[114] The artistry

[114] For example, the widespread use of natural and artificial harmonics is more affiliated to the development of steel strings (which reinforces the contrast between the 'pressed' notes and harmonics). However, it is a viable speculation that the harmonics were used in contrast to the vibrato tones - which comprises the main criterion in deciding the use of harmonics in performance today - because their individual development coincided historically with each other and both techniques perhaps developed in association.

of the newly-found expressive language forms an apex in the history of violin playing. The perfect balance between technical synthesis and musical integration makes one feel it inevitable that from then onwards any further development in violin playing and interpretation would start from revaluating it from within. Consequently, continuous vibrato has created its own aesthetically independent criterion, occasionally departing from the expressivity of the music.

The role of vibrato in the performance practice of new music

In new repertoire where a more rigorous structural integration is intended, the role of vibrato can often be extremely elaborate and abstract. The high degree of conceptualisation in turn creates a space of its own where a broader range of references is available for interpretation. Perception is however related in inverse proportion: the more abstract the code is, the more space is created for its interpretation, but the less immediate the perceived effect of vibrato. A simple ornamental vibrato means an embellishment of a note, needing hardly anything else but its acoustic effect for establishing the meaning – without an agreed code of practice among any specific group of people during any specific period.[115] In contrast, we may encounter an instance where an exaggerated vibrato in a multi-layered composition is interpreted as part of an imposed structure in the organisation of a frequencial stability control or implying a chaos on the narrative plane. A technique functioning in such a manner asks for an inquiry into both the analytical and historical background.

Perhaps because of ever increased complexity in the function of vibrato, twentieth century composition has seen a general aversion to this technique. Many composers have dispensed with it initially to avoid its association with Romantic expressionism. It can also be said that the association was, from the point of new music, very strong: despite the growing disintegration between instrumental playing and musical interpretation, the use of vibrato still held the role of dramatisation, and this was thought essential in the playing of Romantic music. New music has seen very little of either the possibility of reassessing the nature of vibrato, or the point in

[115] Although the practice during the eighteenth century displays a schematic application of the *Affektenlehre* (which is in itself a symbolic code system), vibrato as an expressive parameter beyond ornamentation starts in the nineteenth century with its contribution to expressive content.

doing so. This is partly because of the political necessity to dissociate new music from the old, so that our old perception will not influence the newness in the new.[116] Another, more musical reason, is that vibrato is seen as a vibration operating *solely* on the pitch level.[117]

The preconception of vibrato as a pitch-varying device is precisely at the root of the problem that vibrato is considered to be unsuitable in modern styles of composition which involve a high degree of specificity in their pitch organisation, such as serial and microtonal musics. Serialism, in particular, had a leading role in defining Modernism, and its influence throughout the twentieth century on the conceptual definition of musical matters is evident even in a subject such as vibrato. The prejudice about vibrato limits its application to the minimum in new music, and endangers the expressive value of vibrato in today's musical discourse.[118] Schoenberg's Fantasy, written in 1949, presents an example in which the expressivity of vibrato in the timbral parameters can contribute to music independently from the one in the pitch parameter.

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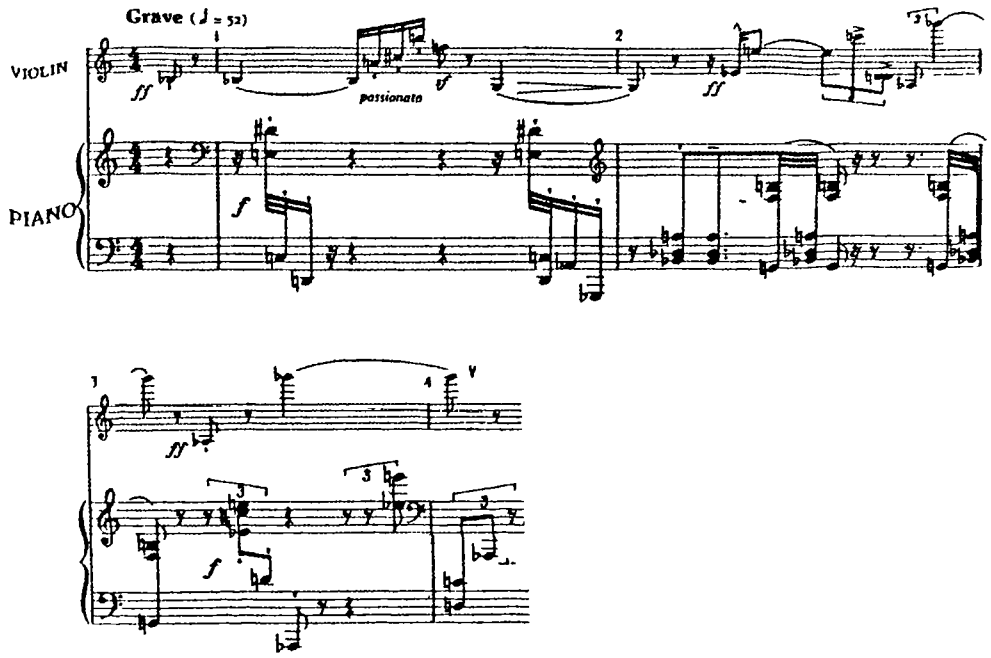
[116] Stravinsky famously declared that music should be executed, rather than interpreted. This statement must be understood in the context of the political climate in music. For him, interpretation was a tool attached to Romantic music - like vibrato did - and a dissociation from that was a necessary step to be taken in order to articulate the compositional structure. He gives a detailed description of what interpretation is (see the last lecture 'the performance of music' in *Poetics*), and makes it clear that a good interpretation does exist and can contribute to the performance of music. However, he didn't see the possibility of isolating interpretation from tradition and creating a new role in the musical discourse. It was only in the 1950s that the composer started more generally to assign a new role to interpretation through incidental music. Stravinsky remained sceptical about interpretation all his life. In his own words, 'I have often said that my music is to be 'read', to be 'executed', but not to be 'interpreted'. I will say it still because I see in it nothing that requires interpretation (I am trying to sound immodest, not modest). But you will protest, stylistic questions in my music are not conclusively indicated by the notation; my style requires interpretation. This is true and it is also why I regard my recordings as indispensable supplements to the printed music.' Igor Stravinsky and Robert Craft, *Conversations with Igor Stravinsky*, second edition, Faber, London, 1979, p. 119.

[117] Vibrato produces oscillation on three principal levels. The frequency level (pitch), intensity level (amplitude), harmonic structure level (the relative level of the harmonics). All three levels vary at the same rate (the speed of oscillation). The harmonics vibrate in proportional accordance to the fundamental tone on the frequency level, but they vibrate in different size on the intensity level. The amplitude of harmonics not only varies in size but also in phase (such as in the process of decay). As a consequence of this difference in phase, the harmonic structure varies in time. The harmonic structure also varies according to the chosen pitch, and this makes it almost impossible to create uniform vibration on the harmonic structure level in more than one note. See Harvey Fletcher and Larry C. Sanders, 'Quality of Violin Vibrato Tones', *Journal of the Acoustical Society of America*, Volume 35, Number 6, 1963, pp. 1534-1544.

[118] Even so, there is no indication that the composers of these musics were against the use of vibrato - in fact most of the performances in their time were with expressively used continuous vibrato. For example, the Kolisch quartet who recorded all the four string quartets by Schoenberg under his supervision in 1936-7, uses a fair amount of continuous vibrato to control tone quality rather than affecting pitch intonation. It can be said that the more recent attitude (playing with as little vibrato as possible) is a result of misunderstanding vibrato to be merely a pitch-controlling parameter.



Ex. III 1: Schoenberg Fantasy *bars 1-4*[119]

Here the pitches are organised serially. In order to articulate the equality of twelve pitch classes, the performer may choose to present the notes as they are without vibrato. This will increase the purity of pitch intonation but it does not answer all the questions involved in a representation of the music. For example, will the non-vibrato sound support the expressivity resulting from the linear organisation of the series?

The violin does not produce an equal amount and quality of resonance between the twelve pitch classes, because of the way in which the strings are set up at the intervals of the fifth. Also the violin is very sensitive to the register of individual pitch. The attempt to hear a low A on the G string and a high A on the *E* string as having the same value presents a considerable problem. Thus a successful projection of the harmonic expressivity in dodecaphonic music may be considered as an impossibility on this instrument.

However, we find the expressivity of this passage also in its rhythmic and melodic gestures, no less than in its pitch organisation. The extreme pitch range (from the lowest G to the top G flat) adds dramatic expression. Making all the pitches resonate at their optimum may strengthen the drama of the narrative. This

[119] Arnold Schoenberg, *Fantasy* for violin and piano, Op. 47, Peters Edition, New York, 1952, p. 3.

leads to a use of vibrato for assisting each note to increase the harmonic overtones to a fuller sound. This is to say oscillation on the levels of intensity and harmonic structure are beneficial in this passage but the pitch oscillation is not. The manner of vibrato can vary according to the criterion of balance between the expressive parameters of a given composition.

Compositional techniques have, since Schoenberg's time, developed further the conceptual definitions of timbral parameters in relation to the expressive parameters of composition. After a period of experimentation,[120] total serialism attempted the organisation of all possible musical parameters according to the rules of twelve-note composition.

This effort was made principally in the development of serial treatment in the field of rhythm, dynamics and instrumentation. This drew the performer's attention to the totality of sound. Although purity of pitch may inhibit the use of vibrato, reducing the oscillation on the pitch level has no justifiable reason to inhibit oscillation on other levels. Does purity of timbre then restrict the use of vibrato? It would do so only if the identity of the violin sound were without vibrato. If a violinist plays the above Schoenberg passage *completely* without vibrato, it is hard to imagine the result being anything near 'what the composer wished'.[121] After having been accustomed to the convention of violin playing (the one *with* vibrato) and having had this convention influence the construction and condition of the instrument itself, how is it possible to dissociate the perception of violin sound from that of violin playing? Here the problem of identifying what is the idiosyncratic timbre of the instrument appears. The legacy of total serialism is that it has, ideologically speaking, reached the apex of an organisatory method in music. Despite the question of the applicability of such a method, it must be stressed that its contribution should be recognised more in performance practice. Performance can learn from the attitude with which the method attempts to produce expressive differentiation/articulation on many more parameters.

In recent decades there has been a tendency to bring the function of vibrato to the simpler, more immediately expressive level by using its acoustic quality to

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[120] Varèse, Cage, and Messiaen must be mentioned as pioneers in this respect.

[121] One can never be sure of the composer's intention, and the non-vibrato sound can not be ruled out from all the possibilities. However, given all the other musical parameters this composition comprises, the argument is a strong one.

complement the structure. This immediacy is employed in contrast to the complex compositional processes, and as the attention of both composers and performers becomes more focussed on intellectually and technically demanding aspects, vibrato has come to occupy a peripheral position in musical discourse.

Vibration on the other levels – intensity level and harmonic structure level – can, theoretically speaking, be incorporated beneficially into the musical structure. However, this very nature of composition in Western music has little means to exploit effectively the so-far-undefined area of performing techniques. Indeed, for the pursuit of possibilities in various aspects of composition, many composers have turned to non-Western sources for inspiration.[122]

Many performers are in fact experimenting to find appropriate types of vibrato in new music. Introducing narrow vibrato often helps to stabilise the sound on the violin particularly when the pitch is high and loud. This may not be considered as vibrato because the pitch vibration is hardly perceptible, but vibration on the intensity level and harmonic structure level clearly contributes to the stabilisation and neutralisation of the sound. Narrow vibrato (which many new-music players use) is not a small-scale use of old vibrato types, but a positive use of the deployment of the less prominent levels of vibration. Narrow vibrato can be therefore considered as non-vibrato operating on the articulation level of the left-hand technique (which will be discussed in the following section on fingering). Performers know instinctively that prohibiting vibrato entirely would result in a major loss of acoustic quality, particularly when such a qualitative loss is not what the composition asks for. Non-pitch varying vibrato is, at present, still in the hands of individual performer to control. While the awareness and sensitivity towards these levels of vibration are not instigated by composition, performance practice itself has the responsibility to develop it.

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[122] John Cage and Olivier Messiaen both sought inspiration from non-Western cultures, from Japanese Zen Buddhism and from Hindu or Balinese music respectively. Cage was concerned mainly with matters of religion and philosophy and the ways in which they could be synthesised and universalised in the culture of composition in Western music. Messiaen's concern was in the formulae (particularly the modes and rhythms) of Asian music, which he took as material and used to illuminate the qualities characteristic of Western musical composition. For a general survey on this aspect in Cage, see David Revill, *The Roaring Silence*, Bloomsbury, London, 1992, Chapter Ten (Zen), pp. 107-125; on Zen's influence on Cage's aesthetic, see James Pritchett, *The Music of John Cage*, Cambridge University Press, Cambridge, 1993, pp. 74-78. The development in realising the affectivity of micro-intonational parameters (including vibrato) and revising the notion of timbre and its identity in musical discourse came with Giacinto Scelsi after his research in Tibetan music. This will be discussed later.

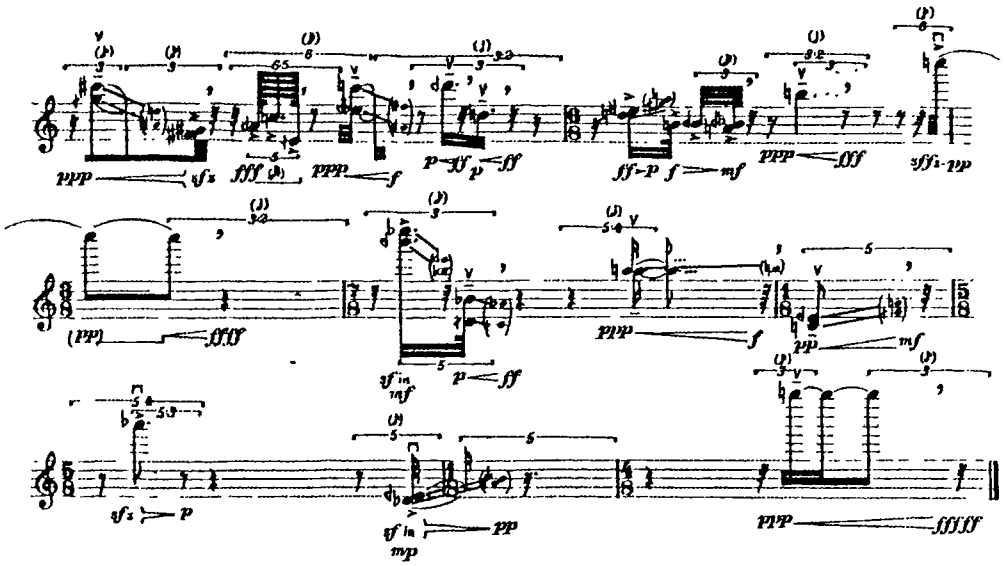
That the affectivity of vibrato is vital in defining the timbral identity of the violin can also be proved by the fact that the violin has no fixed intonation and its responsiveness to vibration at all levels characterises the acoustics of the individual instrument . This being added to the fact that historicity determines perception, we are led to realise that the centrality of vibrato in defining the timbral identity of the violin will continue as long as the instrument retains the same acoustic premise and the same tradition with which it has been identified over the past centuries.

We can summarise the question of dimensions in which vibrato can still make a significant contribution in present day performance practice thus:

1. 'Beautifying' the tone quality – producing a larger degree of harmonic concordance
2. Articulating dramatic expression within the musical narrative
3. Generating particular effects by controlling the speed and finger articulation
4. Stabilising the tone quality
5. Assisting the effectivity of other techniques[123]

A case that contains most of these functions can be found in the following extract from Ferneyhough's *Intermedio alla ciaccona.* Its musical notation has an appearance that suggests the employment of vibrato is out of the question due to its high technical demands. Despite the absence of indications for vibrato (except for a few occasions), its presence in particular moments greatly helps the quality of performance in this music.

[123] The fifth point includes prolonging the decay of pizzicato sounds, neutralising concordant intervals, bringing out the use of harmonics and non-vibrato tones, etc.



Ex. III 2: Ferneyhough Intermedio *closing bars*[124]

The long notes have a crescendo with a considerable increase in amplitude. This crescendo, regardless of the tessitura, requires vibrato to maximise the increase of amplitude in addition to the increase in the pressure and speed of the bow. An increase in the speed of vibrato and 'tightening' of the vibrating finger (thus narrowing/modifying the vibrato width) increases further the effectivity of the crescendo. These long held crescendo notes contrast with the groups of shorter, glissando notes. Glissando notes are, with a few exceptions, played without vibrato. Adding vibrato to the long held notes therefore increases another level of contrast – with and without vibrato – to the musical narrative of this passage. The last note calls further for vibrato for another reason: due to its extremity of pitch, the E string does not have enough length for it to oscillate in accordance with the power of the bow. As a result, the tone quality can be disrupted very easily – that is to say it often 'cracks'. By adding extra vibration to the string, vibrato reinforces the string's natural vibration to cope with the bow pressure.

A systematic application of these functions of vibrato into the performance of any repertoire can not be suggested because of their intricate dependence on the instrumental and physical premises, and their vast variance and complexity of meaning in relation to the individual musical structure. However, two points emerge as being fundamental in most applications: firstly, the vibrato function described as

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[124] Brian Ferneyhough, *Intermedio alla ciaccona* for solo violin, Peters Edition, London, 1986, p. 9.

the fifth point – that vibrato can assist the articulation of other techniques – is more significant than it seems. Vibrato as an articulation itself and vibrato as a supportive agent for the articulation of other techniques may exceed the significance of vibrato as an independently expressive technique. Secondly, most musicians will agree that the above functions of vibrato are for a large part dealt with by performers. These functions refer to qualitative manipulation – some more obviously than others – and consequently one may see their import as a decisive factor for the qualitative elements in musical representation. Such awareness can be increased among performers by means of imposing an interpretative approach which distinguishes what the composer can compose and the performer can compose.[125]

Thus increased awareness makes clear to the performer the distinction between two creative processes, the one of the quantitative elements and the other of qualitative ones. Without any intention of going against or being inhibited by composition, it can be said that a performance represents a musical work whose creative process is distinctly different from that of composition. It follows that, in addition to responding to the schematic structure of composition, the performer should be able to satisfy the requirements of manipulative parameters that are operative and relevant in each particular interpretation.[126]

Vibrato need not be confined to either the intrinsically acoustic or referential, or within any of the vibration levels, as long as there is a possibility of synthesising it expressively into the musical timbre of the violin. The affectivity of vibrato

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[125] One may say, conversely, that such an approach can distinguish what the composer performs and the performer performs in musical representation. After all composition can be understood as a process of giving form (Latin *per forma*, shaping through) to something that already exists in consciousness, and performance as a process of creating form on the basis of what is given. They only differ in degrees, and of course in the conventional values attached to them.

[126] According to the literary theory outlined by Roman Ingarden, a written work of art contains several schematic strata which are vital in portraying objectivities and determining aspects, but also 'places of indeterminacy'. A representation of the written work fills out these spaces. However, this filling-out is not sufficiently determined by the determinate features of the object and can thus vary with different representations. These differences are the results of the changes in the aesthetic process. The significant relevance of Ingarden's theory to musical performance is this: on the cognitive level, the value of the specified elements in a written work is no more or no less than that of the concretised/actualised elements in a representation. Accordingly the text is transcendental. The last point may be questionable in music. However, his theory articulates, as a counter-product (since he is concerned with the nature of the ontological being of a written work in relation to that of its experience), the parallel relevance and significance between the ontological mode of a written work and that of a performed work in the cognition of text. See Roman Ingarden, *Vom Erkennen des literarischen Kunstwerks*, M. Niemeyer Verlag, Tübingen, 1968; *The Cognition of the Literary Work of Art*, translated by R. A. Crowley and K. R. Olson, Northwestern University Press, Evanston, 1973, in particular Chapter 1 Sections 11 and 12, pp. 50-63.

parameters is central to the *idiosyncratic* identity of violin sound,[127] and therefore the potential for further development in this dimension will have an enormous consequence for the future of this instrument. Here the mutual considerations of the nature of the relationship between composition and performance – and of the tripartite relationship of composition, timbre and performance – are vital in understanding the existing methods of musical discourse on the violin and leading it in a new direction. When violin vibrato takes this position of relevance, many other timbral parameters will be necessarily brought into question. It will create an imaginative space where once again, composition and performance co-operate. It may even, as a consequence of this co-operation, come forth with a way to notate vibrato efficiently.

[127] Although certainly the bowing actions are more central to the timbral identity of a stringed-instrumental sound and therefore a left-hand technique such as vibrato has less magnitude in its definition, the perception of instrumental identity regarding vibrato varies considerably between different string instruments and it is an interesting issue in itself. The violin, due to its historical past, is more strongly associated with the vibrato technique than any other Western instrument (except those such as Ondes Martenot), and therefore the contribution of vibrato towards the perceived identity of the violin is more significant than that of, for example, the doublebass.

3. Fingering

Fingering technique and timbral parameters

At its most fundamental function fingering controls the parameter of pitch. Good intonation has a prominent importance to violin playing, particularly when we consider the fact that the violin is an instrument of unfixed tuning. However, fingering is not only about finding the right finger and the right place to press for a specific note. It is also about where in time and how it presses, and where in time and how it releases the pressure. Thus fingering operates as articulation technique too. Furthermore, because of the fact that the left-hand fingers are the physical foundation for all the techniques of the left-hand, fingering influences the effect of all the actions conducted by the left hand. We should first clarify how each finger co-ordinates with the other technical actions when producing a sound, and how this co-ordination functions within each timbral parameter.

All four fingers that can be used for pressing the strings with the left hand have their own characteristics:

- the first (index) finger: a good stability for orientating the whole left hand due to its position as the closest to the thumb, but less agility and flexibility in producing independent movement
- the second finger: good strength, stability, agility, independence, and perhaps the most efficient in control
- the third finger: the least independent, little strength on its own, although it has an advantage of being very sensitive and responsive to minute differences of touch and pressure
- the fourth (little) finger: very little amount of strength and sensitivity but more independent than the third finger, and very flexible

Violinists are aware of these characteristics and often try to overcome the differences by training the fingers to have equal abilities. In doing so, they learn their characteristics and the ways to employ them for the best result. They learn to operate trills with either with the first and second fingers or with the second and third (when the interval is small and requiring little independence). The options for the combination of the open string and the first finger and for that of the third and fourth fingers are less favourable, respectively, because of the lack of agility in the

first finger and the lack of strength and agility in the fourth finger. They learn to avoid producing narratively expressive vibrato with the fourth finger because the tip of the finger is often not strong enough for a required amplitude or intensity of oscillation. The first and second fingers produce harmonics less successfully because of the fact that the light pressure of the fingers weakens the grip and upsets the stability of the left-hand as a whole. These are only a few examples but enough to indicate clearly the ways in which their physical characteristics can determine the extent to which each finger is utilised for particular techniques.

Fingering also influences the timbral parameters which are operated by other articulation techniques: it defines the effectivity of technical action in each parameter.[128] The second and the third fingers are well equipped for a vibrato that requires sufficient variance in size and quality to articulate the required breadth of expression. Harmonics produced by the third or the fourth finger undermine no aspect of the left-hand operation (except the pressure of the pressed finger), and the release of pressure (without destabilising the apparatus) makes the sound more transparent – an effect for which the technique is often employed. The quality of left-hand pizzicato largely depends on the distance between the plucking finger and plucked note (the longer the distance the clearer the note).[129] The fourth finger plucking a note pressed by either the first or the second finger, or the third finger plucking a note pressed by the first, produce a better articulated sound.

The timbral parameter with which fingering has the most important link is that which results from string choices – the question of which string a given note or passage can be and ought to be played on. The left-hand can encompass only the interval of a perfect fourth without shifting the hand or stretching the fingers on a single string on the violin. It can be said that fingering is about moving across the strings as much as on the strings, imposed by the physical limitations of the instrument. Therefore the following discussion considers the issues of string choices as subsidiary to fingering.

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[128] This example of vibrato may be confusing as it claims that vibrato operates as an articulation technique in addition to the intonational one. However, the parameters in which fingering concerns itself with vibrato are those involved in the type of vibrato as dynamic articulation, the gestural effectivity of the technique. Therefore some types of vibrato such as continuous vibrato are omitted from the discussion.

[129] The difference between the left-hand pizzicato and the right-hand one is this distance between the plucked point and the pressing point. The character of the left-hand pizzicato can be said to exist in the large proportional significance given to the plucking noise rather than the plucked pitch. However, a very short distance between the two does not produce any perceptible pitch or plucking noise, hence the acoustic limitation produces the technical criteria.

It should also be pointed out that fingering affects the timbral parameters enacted by other intonation techniques. The character of each finger can influence that of continuous vibrato with its individual width and wave-form, and the intervallic distance between two notes and the relative distance the finger (or two fingers) covers on the fingerboard determines the quality of the glissando and portamento. The fact is that all the intonation techniques also depend on the premise of fingering without which the parameters in question can not be brought to expression. Although the extent to which fingering affects intonation techniques is of considerable interest, the present discussion focuses on the function of fingering as an articulation technique.

Although good training can lead to producing a reasonable balance of behaviour between the fingers, their differences remain perceptible. The uniformity of quality among the fingers may present a utopian facility for violin playing,[130] but violin playing necessarily demands more subtlety if it is going to be a human act. Indeed these *differences, or irregularities, produce an indelible sign in the act of* violin playing, and therefore constitute part of the timbral identity of the violin. Once we acknowledge this fact, the challenge to employ appropriate fingering leads us to the question of how it interacts with composition. At a high level of technique these differences can be exploited in determining the character of intended articulations in a piece of music.

Traditional approach

It is still an ongoing practice in music conservatoires that violin teachers give students an edited copy of music with fingerings written in. Fingering may be thought of as a set of instructions showing a convenient way of playing a series of given notes. One of the teacher's tasks is certainly to demonstrate an example in which there is least disruption and a maximum economy in the manoeuvre of both

[130] There are a large number of studies written for the purpose of achieving this uniformity, a typical example of which is the series of studies by Otakar Ševčík, published around the turn of the twentieth century. He systematised basic technique of the left hand by presenting small units of bars to be repeated many times. The aim of the exercises is to improve the physical strength of a specific finger under a specific condition with each unit. The studies as a whole present all possible permutations and combinations of basic units that are applicable to fingering. Otakar Ševčik, *Schule der Violintechnik* Op. 1, 1881; *Violinschule für Anfänger* Opp. 6, 7, 8, and 9, Leipzig, 1904-8.

hands, by suggesting a specific fingering.[131] This level of instruction tells the student the facts of good violin playing which has been accumulated through pragmatic experiments over the generations. Knowing how to finger is almost tantamount to being technically efficient. However, when we observe fingering at a further level, it starts to offer something else beyond efficiency.

Carl Flesch, one of the most distinguished pedagogues of violin playing in the twentieth century, stresses the connection between fingering and musical expression while explaining the need to discuss the subject in his *Violin Fingering* :

> Fingering as a technical problem is subject to the laws of mechanics and logic. The rule of minimum effort determines the selection of the fingering, and the ear controls its tonal results. Accordingly a particular fingering can be justified by a reasoning process. This is not so with fingering as a means of musical expression. Imponderables, such as the temperament and the personality of the performer, combine with the intentions of the composer to play a decisive role. . . . Among the resources of the violin that serve the purpose of musical expression, the diversity of available timbres plays a leading role. In this respect the violin surpasses even the human voice. An appropriately chosen timbre can greatly illuminate the musical structure of a composition and its melodic line, and thereby increase its effect on the listener. Dynamics, though primarily controlled by the bowing technique, also depend greatly upon timbre – that is upon the choice of strings and so in turn upon fingering.[132]

The practice of handing down a master's fingering of a particular musical piece is a long standing one. In the nineteenth century most of the violinist-composers included in their published music substantial technical instructions – bowing and fingering – in addition to musical ones such as pitch, rhythm, and dynamics. These technical instructions are in effect not just a help towards a more efficient performance: they describe an expressive element of the music and therefore constitute part of the piece. They illustrate a quality of the music which exists beyond the confines of standard notation, a quality only describable through a technical instruction to the performer. In this way fingering can be a unique sign system for a particular interpretation of musical quality.

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[131] Fingering decisions on the violin affect not only the left hand but also the right hand: string crossing often depends on the decisions taken on the left hand.

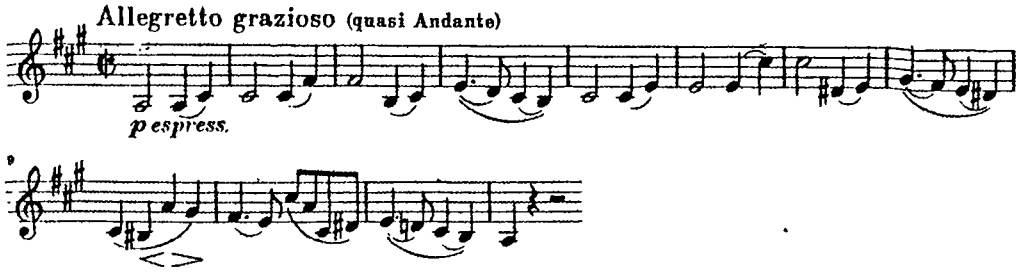
[132] Carl Flesch, *Alta Scuola di Deteggiatura Violinistica*, Edizione Curci, Milano, 1960; *Violin Fingering*, translated by B Schwarz, Barrie and Rockliff, London, 1966, p. 280. This book is entirely dedicated to both technical investigations and interpretative issues evolving around fingering.

Until the end of the eighteenth century, the instrument had to be held by the left-hand alone against the body, and the movement of the left-hand was severely constricted by this necessity. The development in the construction of the violin at the beginning of the nineteenth century changed all this,[133] and instigated new techniques that employ some timbres that had been hitherto unrealisable.

One of these timbres was a warm and rich sound produced by using the lower strings in high positions on the violin. We observe a desire for this timbre in numerous examples of nineteenth century publications of violin music, and particularly in the their editions of eighteenth century music.[134] The latter group of examples communicate this liking by means of editing, that is to say adding information to the original manuscript. A typical and very popular instruction of this kind is '*sul G*': it often occurs in a melodic passage in order to bring out sufficiently the desired quality of sound. Of course, the passage can be played over the other strings on the violin – the specification of the string signifies nothing but the fact that the composer (or the editor) desires a particular timbre available on that string. From this fact I suggest further that the specification includes a particular expressive nuance derived from the physical constraints of the fingers themselves – an element that is not realisable without being *fingered* (not only played). By indicating a passage to be played on the G string, the performer fingers it in such a way that the degree of tension and release varies note by note. This brings out a continuity of the line as if it was sung. Regarding the *sul G* instruction, the production of a deep sonority may be obvious but that of linearity is most definitely less so.

[133] The introduction of the chin-rest (which helps to hold the instrument securely) also dates from this period.

[134] See instructive writings by Louis Spohr (*Violin-Schule*, 1832), Pierre Baillot (*L'art du violon*, 1834), Charles-Auguste de Bériot (*Méthode de violon*, 1858), and editions by Karl Guhr (*Über Paganinis Kunst, die Violine zu spielen*, 1829 - transcribing the fingerings Paganini used), Ferdinand David, Joseph Joachim, August Wilhelmy, and others.



Ex. III 3: Brahms Violin Sonata in A No. 2 third movement, bars 1-12[135]

Joachim is said to have preferred playing this passage throughout on the G string, and have had the composer's approval in doing so. In this case, his left-hand moves around over the range between the first and eighth positions: even by today's technical standards, this fingering presents considerable intonation problems and one wonders about the advantage of adhering to the G string here. Naturally, it is hardly avoidable for some slides to occur between big leaps such as in bars 6 and 9. Are these slides *meant* to occur?

Playing on a single string forces the left hand to shift with intervallic leaps. Normally this can be avoided by crossing over the strings, which reduces the action of the left-hand to the minimum while increasing that of the right-hand. The advantage of the G string sonority will not be drastically impaired if some of the notes are played on the D string to compensate for better intonation. However, this will completely miss the expressive point of this fingering. The slides are meant to occur: covering the given pitch range on a single string produces variance of tension and release by occasionally shifting for large intervals as well as by shifting upwards to the high positions (which intensifies the sound). This variance is precisely the expressive advantage this fingering is designed for. The physical necessity imposed by technical instruction creates a particular expression, one that can be called dramatic and lyrical in the context of nineteenth century music. Fingering can matter to the nucleus of musical expression.

The performer may have fingering choices according to the musical expression he or she desires to create. In making such decisions, the choice between the four strings is as important as the fingering on a single string.

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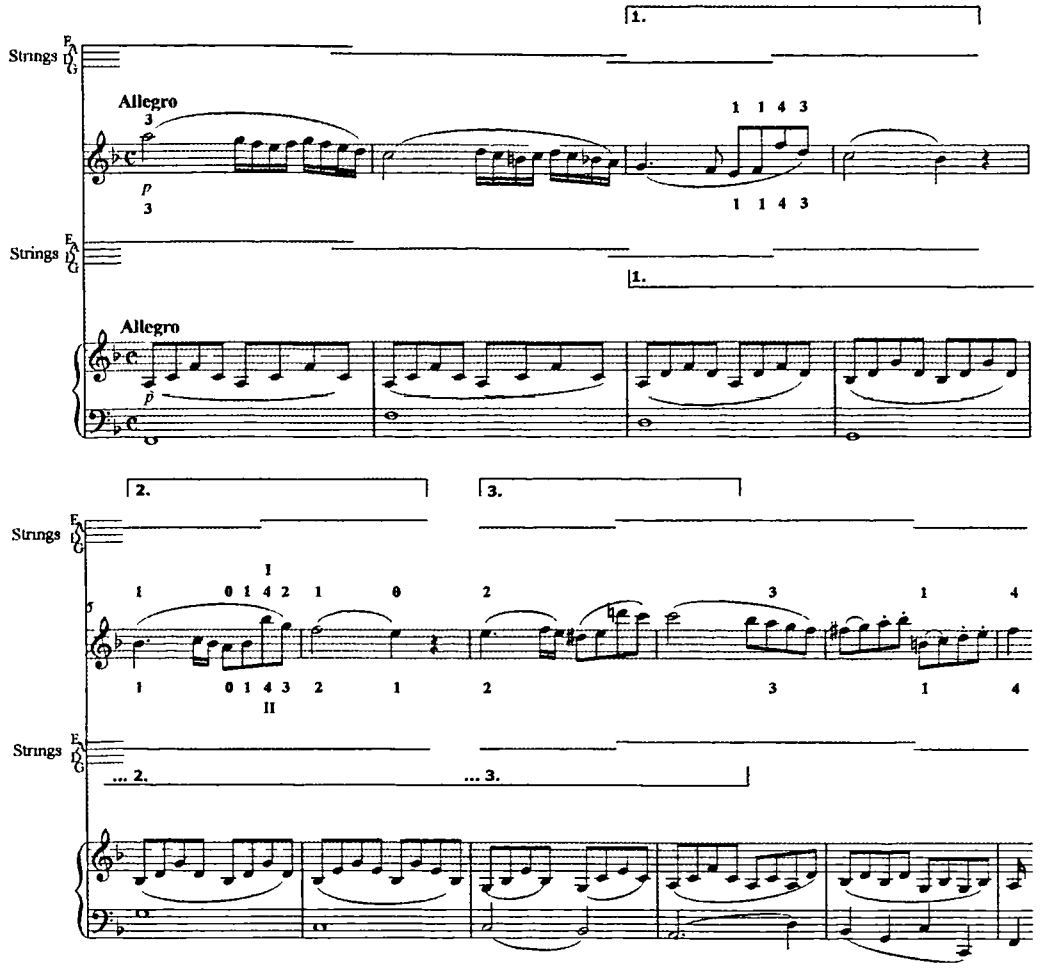
[135] Johannes Brahms, Sonata for violin and piano No. 2 Op. 100, Henle Verlag, München, 1967, p. 20 (violin part).



Ex. III 4: Beethoven Violin Sonata in F No. 5 first movement, bars 1-10 with string indications[136]

There are several ways of fingering this passage, and two examples are given here. The first example (written above the violin part) is perhaps the most commonly used fingering because it is relatively easy and secure to play in terms of technique. The second example (written below the violin part) opts for remaining on the A string two more bars until the second half of bar 7, involving a leap of the interval of an octave (in bar 5) which demands more technical skill. The main difference is the duration over which the left-hand stays on the A string. They represent different interpretations of the music's expressivity.

The sequential melodic pattern repeats itself three times between bars 3 and 8. In the first example the violinist fingers those three appearances of the pattern

[136] Ludwig van Beethoven, Sonata for piano and violin in F No. 5 Op. 24, Henle Verlag, München, 1978, p. 94.

every time with a string crossing. This can be paired according to the melodic segmentation – D and A, A and E, and again A and E. The repeated string crossing between the A and E strings in the second and third appearances brings out the independent character of each sequential unit (the lines above the violin part indicate this). The second appearance marks a return of the E string sonority which has been heard at the beginning of this theme (which is also that of the piece). These factors make bar 5 a focal point as the beginning of the second half of this theme. In the second example the string change is gradual from D to A and then to E (the lines below the violin part indicate this). One of the features of this fingering is obviously its linearity: it projects the theme into one long phrase rather than two. Another feature is its timing to return to the E string in bar 7: it coincides with the reappearance of the tonic (albeit in the first inversion) which has not been heard after the second bar.

Thus the fingering decision can influence the narrative expression of music – the phrasing and articulation – by exploiting the timbral characterisation deriving from the physical constraints of the left-hand, and from the differences between the four strings . Whilst the example of Brahms explores the expressivity of fingering that operates parallel to the strings, the latter example from Beethoven demonstrates the expressivity that operates across the strings.

An extensive analysis of divergent aspects of a given piece is imperative in order to answer the question of which fingering is musically more appropriate, and the present discussion does not dare to reach an answer with these small, isolated examples. This discussion only suggests that the fingering choices are determined not only according to technical manoeuvrability, but also by the expressive power which the physical premises can affect within the acoustics of the instrument and

within the conventions of violin playing.[137] The subject of fingering choices remains an issue which concerns every violinist in the performance practice of the traditional repertoire, and this may explain partially why the imaginative space and variety of interpretation in the older repertoire are considerably more expansive than its counterpart in new music.

Fingering in new music

The issues surrounding fingering are considered marginal in performance practice of new music. Amidst the increasing tendency to specify as precisely as possible the parameters that are involved in the composition and that can be notated, performers assume that the necessary fingering choices must have already been made by the composer if they are to have any significance in the expressive content of a given piece.

Performers of new music may argue that the fingering choices don't matter much, because the precision of the intonation and articulation has a paramount importance in many of the compositions of the twentieth century. This claim may be true in works whose expressive parameters are less easily realisable upon the physical and technical premises on the violin – containing some particular configuration of pitches, combined with particular rhythmic patterns which have been composed in no direct reference to the practical considerations. However, those compositions that are less idiosyncratic for violin playing can still be performed with an idiosyncratic expressivity that is not directly comprehensible from the notation.

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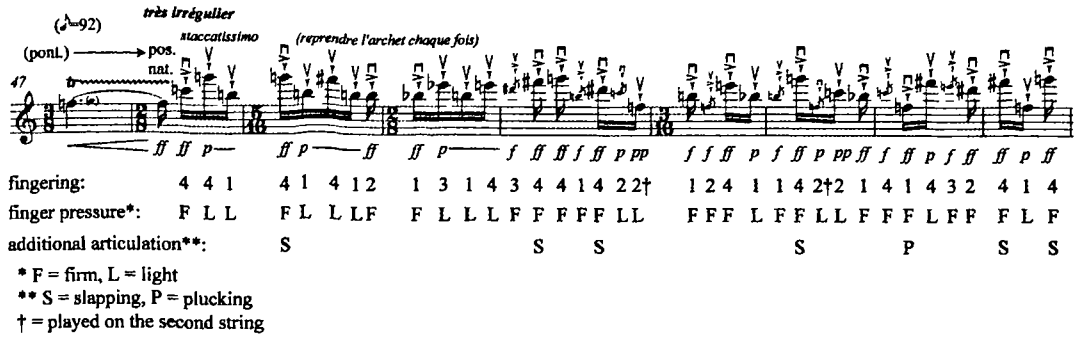
[137] Or it can be said that the expressive power is a relative measure and its value is what the instrument or the performer gives at a given time. When Franz Liszt transcribed Beethoven's Fifth Symphony for the piano, the timbral appropriateness of musical representation was second in his mind after the fascination of the modernised pianos: '. . . the expanded possibilities acquired by the Piano lately, through improvements in players' technique and the instrument's mechanism, make it possible to achieve more on this instrument than ever before. Through the considerable development of its harmonic power, the Piano has become more and more able to encompass orchestral compositions. In the space of its seven octaves, it can produce, with few exceptions, all the features, combinations and figures of the most erudite compositions, and leave the orchestra only the superiority (immense it be true) of diversity of timbre and mass effect. . . . I will be well pleased if I have succeeded in transferring to the Piano, not only the broad outline of Beethoven's Composition, but also that multitude of detail which contributes so strongly to the perfection of the whole.' Liszt's purpose in writing this work was to strike a mutually complementing relationship between the 'players' technique and the instrument's mechanism' on the one hand and the 'multitude of detail' on the other. This is to say, to give into what is already experienced and appreciated, another interpretation that has been hitherto inexplicit, through the use of new techniques/timbres. Franz Liszt, Preface to *Symphonies de Beethoven*, 1865; *Neue Liszt-Ausgabe*, Editio Musica, Budapest, II/18, 1991, p. 2; translated from French into English by N. Hodges.



Ex. III 5: Boulez Anthèmes *– bars 47-55 with fingering articulations*[138]

The above passage from Boulez's *Anthèmes* (1991) presents the performer with a number of problems to which there is no obvious solution. The major problem is the control of dynamics in the bowing hand: the dynamics vary from *pp*, *p*, *f*, and *ff*, in an irregular order and there is no pattern to which the right-hand can orientate its movement.[139] In order to help the imagination of the performer, the composer provides several indications. The resulting effects to be aimed at are: *très irrégulier* and *staccatissimo*. All the notes have the 'wedged' accent markings, and some have ordinary accents too. In addition to these the composer suggests how best this passage can be executed: the performer should 'retake the bow every time' (*reprendre l'archet chaque fois*) and give 'longer note values for the *ff*, and shorter values for the *pp*' (*les valeurs* ff *plus longues, les valeurs* p *plus courtes*), and every single note, including the grace notes, is given a marking for appropriate bowing direction. They all are immensely helpful in approximating the designed articulation and in imagining how it can be realised.

However, in attempting to do precisely what is given in the notation, the performer realises that it requires the highest possible standard of control in bowing, which most violinists may find extremely hard to achieve. Faced with such a limit to the possibility of perfect execution, the violinist has two options. The first option is that the notation can be interpreted from a particular point of view and the intended effect of '*staccatissimo*' and *très irrégulier*' achieved by modified (if not different)

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[138] Pierre Boulez, *Anthèmes* for solo violin, Universal Edition, Wien, 1992, p. 2.

[139] In a passage like this, there is an unavoidable gap between the intended articulation based on the compositional scheme and the resultant effect such a scheme produces through performance and perception. The inclusion of such a distance between composition and performance/perception within the aesthetic discourse of the work can be seen as a hallmark of this style of composition See for example Nicolas Ruwet, 'Contradictions within the Serial Language', op. cit.

methods of execution. In doing so, the performer prioritises the indications for the resulting effects over those for the actions.[140] The question of whether this is an appropriate priority is an issue that needs to be discussed in the overall context of the piece.

Meanwhile, the second option deals entirely with the instrumental manoeuvre. The technical process suggested in the notation can be helped by other parameters of instrumental playing: for example, fingering can contribute to the differentiation of the dynamics (please refer to the markings below the music). This fingering involves two levels of articulation. The first level is the fingering manoeuvre itself: the 'light' finger pressure produces less clarity by introducing more non-harmonic partials whilst the 'firm' finger pressure reinforces the maximum projection of the pure harmonic partials (hence the clarity of pitch). The 'wedged' accents in some of the *f* and *ff* notes can be reinforced by a fingering attack that strikes the string exactly at the same time as the bowing attack ('S' for slapping indicates these).[141] One of the *ff* notes, the note F in bar 54 can be articulated by plucking the string with the fourth finger of the preceding note.[142] On the second level, the choice of the A string for the *p* and *pp* notes helps differentiate the character of the group of softer amplitude from that of the louder. Other means of helping this articulation includes changes in the location of contact between the bow and string. Choosing a position near the bridge for the louder dynamics brightens the sound, whilst playing near the fingerboard for the softer notes reduces the brightness.[143]

This co-ordination between different technical parameters can improve the effect of the notated articulations. This provides the performer with an opportunity

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[140] In discussing works of the composer Klaus K. Hübler, Peter Böttinger names these two types of notation as 'resultant notation' and 'action notation'. These two types have 'arisen from the dilemma as to whether music is to be notated as it should sound (the result of a performance), or whether one should notate how to produce the desired result (as action notation)'. Peter Böttinger 'The unpredictable beauty of predictable collapse', composer brochure Klaus K. Hübler, Breitkopf & Härtel, Wiesbaden, 1987, p. 8.

[141] In order to attack the fingerboard the left-hand has to swing back in a motion that rotates around the thumb or the first finger. Not all the *f* and *ff* notes can be treated in the same manner because of the fact that only the fourth finger (occasionally the third too) can produce a movement powerful enough for attacking.

[142] This technical device was used by Joseph Szigeti to ensure precise articulation in downward-moving slurred passages. Szigeti devotes a substantial part of his book *Szigeti on the Violin* to discussions on fingering and string choices - which reflects the importance he attaches to the technique for general performance studies. Joseph Szigeti, *Szigeti on the Violin*, Cassel, London, 1969, Chapters 11-13, pp. 47-64.

[143] This can be done, although it reduces the clarity of the bow articulations to some extent. In spite of such disadvantage, the changes of the bow position on the string produce a considerable variety on the level of timbral differences between the 'strong' and 'weak' notes. In the same manner in which the differences between the fingered strings change the sound, the bow positions affect the quality of sound rather than quantity.

to experiment with the margins of the written instructions, before going to the first option of prioritising the resulting effects over the indicated actions or vice versa. It may possibly even offer a solution before having to choose between the elements of notation. The point is not that the performer ought to consider the notation to be absolute, but rather that there is still enough space and sufficient parameters that are not fixed in notation.

Fingering and string specifications are by nature always indications of actions rather than of effects, and they have an appearance on the paper that has no resemblance to the resulting sounds. This fact can lead to a reversal of the force in musical notation from the more traditional orientation of signifying the result to that of specifying the procedure. For instance, an alternation between two strings results in an alternation of two timbres, but the notation does not define the resulting effect: the effect can be that of echoes or simply a destabilisation of the timbre.[144] However, the lack of indication of the resulting sound does not lessen the musicality of the work. Whilst the action indication defines the boundary of all possible sounds, this boundary allows spontaneity and imagination as major components of the resulting effect.[145] The action indication widens the number of possibilities in which a work can be projected, and grants many different manifestations. Thus fingering is a function that is also expressive in producing an unpredicted timbre as well as in controlling a specific timbre. Indeed when notation leaves out the precise result,

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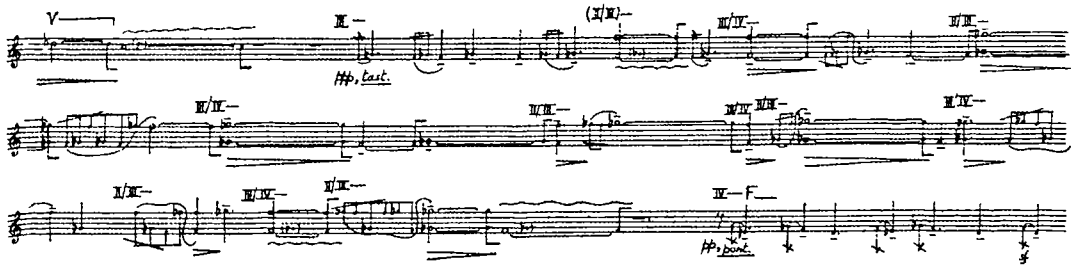
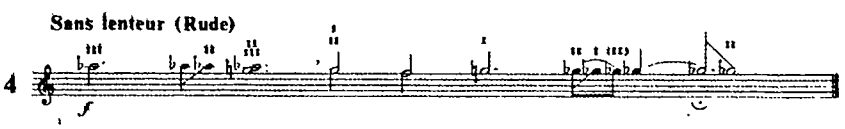
[144] Franco Donatoni's *Argot* contains a good example of this. Incidentally, here it seems appropriate to mention that this type of action notation resembles lute tablature in their employment of the instrumental mechanics. Franco Donatoni, *Argot*, Ricordi, Milano, 1979, p. 4, lines 4-6.

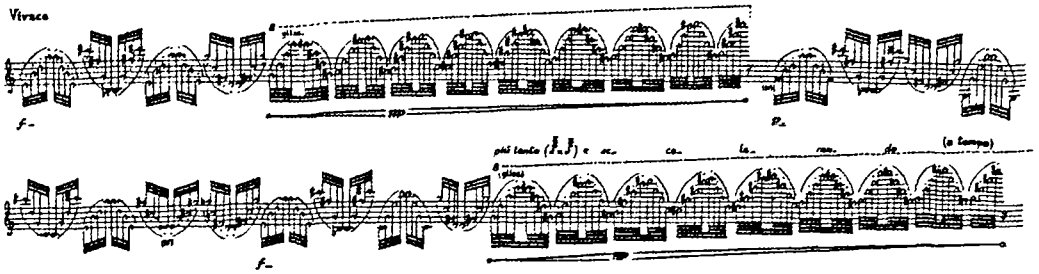


[145] The following example from Cage's *Chorals* shows string specifications on nearly every note. They introduce a wide timbral variety – including beats in the double stops with a close interval – to an otherwise very plain melody. John Cage, *Chorals for Violin Solo*, Edition Peters, New York, 1978, p. 2.



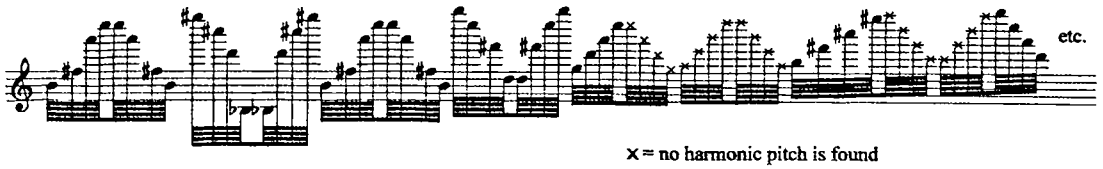
fingering can give powerful expression to music – an effect that is totally different from what one expects from its normal function.

The unpredictable result of fingering can not be better exemplified than in Salvatore Sciarrino's works for string instruments.



Ex. III 6: Sciarrino Caprice No. 1 the beginning[146]

The notated pitches are not the sounding pitches but those to be fingered with a light pressure so that harmonics will be produced. The notation suggests a series of arpeggiated chords (and indeed the bowing arm moves as if playing ordinary arpeggios). Contrary to the seemingly self-evident figuration, the actual sounds are quite different. The sounding pitch depends on the choice of strings (G or D or A or E) and their length divided by the half-pressing finger. The notated pitches have harmonics whose amplitude differs drastically from one to another. Some of the fingerings do not even have harmonic overtones. Thus the actual sounding notes of the above passage may appear similar in contour but different in every other way:



Ex. III 7: Sciarrino Caprice No.1 the beginning notated in sounding pitch

The most striking feature of Sciarrino's notation is the sensual remoteness of the

[146] Salvatore Sciarrino, Six Caprices for violin, Ricordi, Milano, 1976, p. 2.

projected timbre from what the notation purports in its normative function.[147] The resulting sounds do not have any conventional likeness to either of the notations – of fingering pitches or resulting pitches. What remains still perceptibly identical in performance is the rhythmic figuration, even though this is also affected by the resulting sounds since some of the pitches are hardly audible.[148] In fact, if the performance retained a likeness to the score in a conventional sense, it would miss the point of Sciarrino's notation.[149] By indicating the fingering positions rather than the sounding pitches, he leaves the possibilities of their resulting timbre open. The notation does not define what they are, but specifies what they are *not*.

The convention of fingering as a free choice (seen in the examples of the nineteenth century music as well as of the Boulez) locates the technique firmly in the realm of performance practice. The above examples of Donatoni and Sciarrino suggest that fingering may be a constituent part of the composition, and therefore that it can be a compositional technique as well as one of performance. However, when composition incorporates fingering as material it opens up a new space of creativity in performance. This space needs the imagination of the performer to contextualise the expressive possibilities which the fingering produces within its relevant timbral parameters. The relationship between the fingering and the fingered sound remains as volatile as ever. Thus the performers should articulate for themselves the fact that it has the same dynamic link between the two but the new relationship is only the reverse of the convention: the resulting music (what is fingered) becomes an interpretation of the fingering.

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[147] Richard Barrett explains that Sciarrino's relationship with the musical discourse of the nineteenth century music 'is not the rationalised, critical and engaged attitude . . . but rather a hopeless (and hopelessly "romantic") nostalgia for lost means of expression.' Thus the sensual remoteness maintains a cognitive proximity and the relationship between these two kinds of perceptibility is very much a product of his own creativity. Richard Barrett on Sciarrino, *Contemporary Composers*, edited by B. Morton and P. Collins, St. James Press, Chicago, 1992, p. 844.

[148] The dissimilar character of the notation and the sounds is most keenly experienced when we listen to a recording of his work with the score.

[149] Charles Seeger considers the standard Western notational systems to be largely prescriptive (action notation) in so far as their manner of symbolization is concerned. Even what is discussed in this Chapter as resultant notation is, according to him, prescriptive: it does not describe the uniqueness of every single performance, in that it only represents culturally agreed rules of what it *should* sound like (rather than what it does sound like). He argues, when discussing methods for notating non European musics, that descriptive means of music-writing (in his case the use of an oscillogram) should be considered no less important than the prescriptive counterpart. The relevance of Seeger's view of Western notation to Sciarrino's is their shared knowledge of the limits of Western notation in relation to musical performance as physically unique phenomenon: Sciarrino's notation demands from the performer the understanding that the performance is an allegorical expression of the music and thus his notation is intended as remote, symbolic fragments within that expression. Charles Seeger, 'Prescriptive and Descriptive Music-Writing', *Music Quarterly*, Oxford University Press, New York, Vol. 44, No. 2, pp.184-195.

Because of this phenomenal nature of the fingered sound, fingering technique can be best controlled through listening to the quality of sound one makes. Then it follows that the performer must establish an individual link between the technique and the physical identities of the instrument, of the performer as violinist, and of the surrounding acoustics. Upon this level we can establish a link between the technique and one's own understanding of the musical and historical styles of the piece for whose more adequate expression the technique is employed. There is no ideal fingering that can be applied universally. Fingering varies from one person to another, and it does so even from one occasion to another.

From the point of view of fingering as signifier, this technique only suggests an area of possibilities of sound that may occur. This also applies to the fingering instruction a teacher gives to a student. What is given by a teacher points to an intended timbre, but it can not be taken as an algorithm. Regardless of whether the notation is of an instructive nature or of a result-orientated one, the complex relationship between fingering and the area of its projectable sounds has a considerable significance if one understands the sound to be a musical timbre that maintains the immediacy and inevitability of musical expressivity.

4. Speed and pressure of the bow

Functions of the bow on the violin

The necessity for bowing distinguishes the instruments of the violin family from other stringed instruments such as the guitar, harp, cimbalom, and instruments of the keyboard family. The bow is said to have existed in both Islamic and Byzantine culture by the tenth century. During the course of its development in the following centuries world-wide, this simple device opened up an enormous range of musical expression that had hitherto been impossible to obtain from stringed instruments.[150] Bowing determines the length of a note, its basic character, its dynamic nuance, and the manner of its connection with other notes, and can be a basis for the articulation of various structures in music.

Over the centuries the technique has evolved according to the changes made to the construction of the bow itself.[151] However, the main function of the bow remains the same to this day: it is to sustain the sound in a similar way in which human voice and wind instruments control it with their breath. The ingenuity of sustaining action of the bow has never failed to fascinate us. For example, we observe its power of fascination in Elliott Carter's *Duo* for violin and piano (1974). Carter states that the expressivity of the bow is taken as a central structural feature of this work:

> The composition draws its basic character primarily from the contrast between the sounds made by stroking the violin with a bow, that can be sensitively controlled during their duration and the sounds made by striking the piano that, once produced, die away and can only be controlled by being cut short.[152]

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[150] Contrary to the high status of bowed instruments in Medieval and Renaissance Europe, their social standing in the preceding culture was very low. Werner Bachmann observes that 'bowed instruments were originally used exclusively for the performance of folk music, and were disdained by the cultured musicians and theorists of Islam. They were described as imperfect, and are mentioned only in parenthesis for the sake of completeness. Only the lute and lute-playing were aristocratic. The Chinese described bowed chordophones as *bu* (=barbarian), and as such they rarely participated in the court music or religious ceremonies of Asian peoples.' (p. 118) He also suggests that the growth of polyphony in Medieval Ages was stimulated not only by the organ, but also by the advent of bowing in Europe. Werner Bachmann, *Die Anfänge des Streichinstrumentenspiels*, Breitkopf & Härtel, Leipzig, 1964; *The Origins of Bowing*, translated by N. Deane, Oxford University Press, London, 1969, pp. 58-64, and pp. 117-123.

[151] The bows up to circa 1750 vary in length, weight, the quality of wood, and attached mechanism (screw-nuts were first fitted at the end of the seventeenth century), but their bowsticks were generally weaker and always in a convex shape.

[152] Elliott Carter, preface to *Duo* for violin and piano, Associated Music Publishers, New York, 1976, p. ii.

It is indisputable that bowing is the main source of sound production on the violin, and that the actions of the right-hand have ultimately far greater significance than that of the left-hand in performance practice on the violin. Furthermore it can be said that bowing is the most vital of all the techniques in violin playing. However, current performance practice indicates that very little is known about the mechanism of bowing the string, let alone the functions of bowing technique.

Sustained sound on the violin is produced by the interaction between bow and string. The nature of this interaction can be compared to that between reed and air column in the wind instrument, in that they produce a mode of oscillation. By pulling the bow the vibration of the string becomes maintained by the frictional force between the bow and the string. The resulting sound is thus defined by the mode of this frictional force. The ability to control the vibration of the string will result in a great difference in the sound – from that of a beginner to a professional.

Bowing action consists of three controllable dimensions: velocity, pressure and point of contact. Varied combinations of these produce sounds of diverse character – loud, soft, heavy, light, dark, brilliant, etc. In addition to this, the performer can develop a set of techniques which utilise the physical characteristics of the bow, such as *martelé*, *staccato*, *spiccato*, and *ricochet* articulations. Since the various bowing articulations depend on the basic function of the bow as a sustaining device, the aspects involved in the plain strokes are examined first.

Musical differences offered by changes in the speed and pressure of the bow

i. Discussion

In modern violin playing, bowing speed began to be discussed as an important technique during the nineteenth century, following the development in the construction of the bow which introduced a radically modified range of expression

in bowing manoeuvre.[153] Nineteenth century musicians saw the significance of bowing speed in relation to tone quality and expression. Baillot considered that bowing can characterise music by maintaining slow or fast strokes according to the context:

> Roundness of tone, that is to say the manner of making the string vibrate as evenly as possible, is the principle that is called *breadth* in playing. . . . It manifests itself at one and the same time both as a restraining force and as a forward movement of the bow. It can only be defined by saying that it is a combination of slowness and speed. . . . In the *Adagio*, it is rather more than the normal holding of vibration that seems to hold back; in the *Allegro*, it is more than the normal speed of the bow . . . . Sometimes the *length* of the bow stroke is confused with the *breadth* of playing. This length, when it is out of place, is in no way true grandeur but a mere caricature of it, whereas a small amount of bow is very often enough to give breadth to the loftiest thoughts.[154]

Baillot's claim is that bowing speed over a series of strokes can determine timbral character, and therefore it should be employed to effect the character of the music. The concentration on control of bowing speed shown likewise by his contemporaries, indicates the fact that bowing speed had a tremendous effect on the articulation of contemporaneous music as well as on its performance practice. In addition to this timbral effect of bowing speed, the musicians were, as in modern periods, aware of the fact that bow speed also affects amplitude. However, amplitudinal gradation produced by the bow was effective only at local and decorative levels of expression in the nineteenth century. Stowell observes in Habeneck's *Méthode* that an increase or decrease in bowing speed was considered as a useful means of making small-scale *crescendos* and *diminuendos*, but only in

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[153] The term 'modern violin playing' applies generally to the methods of violin playing explored by the French school and others following them since the beginning of the nineteenth century. The modernisation of the bow more or less coincided with this, but the dividing line between the 'old' and 'new' rests more on the rapid changes in the social circumstances such as the introduction of music halls. It can be said that the dividing line is the difference of aesthetics. There have been a number of treatises written on bowing before the nineteenth century whose insights go beyond the expressive confines of the convex bow (see for example Mozart's view on the means of achieving 'purity of tone' in *Versuch einer gründlichen Violinschule*, Augusburg, 1756, l'Abbé le fils's discussion on the use of finger movement to effect a smooth bow change in *Principes du violon pour apprendre le doigté de cet instrument et les différens agrémens don't il est susceptible*, Paris, 1761). However, a large amount of the observations made in these treatises not only depends on the pre-nineteenth century condition of the instruments but often presupposes a particular aesthetic condition such as the *Affektenlehre*, and therefore one cannot automatically consider what appears to be their equivalent in post-eighteenth century violin playing as a developed form of the same technique.

[154] P. M. F. Baillot de Sales, *L'art du violon: nouvelle méthode*, Paris, 1834, p. 130; cited in Robin Stowell, *Violin Technique and Performance Practice in the Late Eighteenth and Early Nineteenth Centuries*, Cambridge University Press, Cambridge, 1985, p. 138.

places where no change of actual timbre was required.[155] For Habeneck, the speed of the bow could not only help the timbral character but also the production of amplitudinal *nuance*.

With the introduction of steel and metal-wound strings, the quality of violin sound became more brilliant. The physical condition in which the violin produces the standard sound was improved as the strings became more resilient in situations when previously the sound would have broken into noise. Consequently a much broader range of amplitude as well as a new area of timbral expression became available on the violin, and the means of producing newly-found expressive power was sought in bowing technique. In particular, musicians in Europe strove for the production of larger dynamic differences. Although the question was about a better exploitation of the relationships between bowing speed, pressure, and its point of contact, attempts at greater differentiation of speed continued to have the most importance in the production of dynamic nuances, to the extent that the significance of bowing speed was dramatically altered from being principally a parameter of tone colour to that of amplitude. The production of a wide dynamic range by changes in bowing speed alone is not impossible to achieve – but crucially, it is only achievable at the expense of control over tone colour. Generally speaking, one can observe that the effect of bowing speed on tone colour has decreased its influence in inverse proportion to its effect on amplitude in the discourse of bowing technique in the course of the century.

The speed of the bow alone doesn't correspond to the amplitude of the sound it produces. Provided that bowing pressure is maintained at the optimum level of harmonic resonance, the amplitude depends on the interaction between the speed of the bow and the point of contact between the bow and the string, as these two parameters determine the amplitude of relevant frequencies in the vibrating string. However, the more traditional, better discussed subject of bowing speed still maintains a precedence over the other parameters in deciding the means of realising amplitude in modern performance practice. Indeed bowing speed is even now one of the most frequently discussed subjects and is taken as a primary means in

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[155] F. A. Habeneck, *Méthode théorique et pratique de violon, précédée des principes de musique et quelques notes en facsimile de l'écriture de Viotti*, Paris, c. 1840, Part 3, Chapter 1, Section 1, pp. 100-102; cited in Robin Stowell, *Violin Technique and Performance Practice in the Late Eighteenth and Early Nineteenth Centuries*, op. cit., pp. 140-141

representing all kinds of expression: this can be seen to the extent that bowing speed is considered to enhance fluency of musical expression as a whole. The function of velocity control in the use of the bow may be different depending on the historical period, but its importance is observed in the pedagogy of violin playing of every period.[156]

In actual practice, what is the criterion according to which we determine bowing speed? We may consider that whatever speed produces the appropriate sound in the musical context *is* the right one. Convention leaves most of the decisions about bowing to the performer, and it must be mentioned that the performer's decisions are well respected, all for good reasons of practicality, to the extent that the relevant indications in the score can be altered without being considered offensive to the composer. In trying to achieve the most appropriate sound in a given context, it is likely that the violinist delivers the bow across the string at a speed in which the note can be played evenly within a single stroke and which produces a sound that corresponds with the dynamic marking in the score. The violinist may introduce stroke changes whenever the bow runs out of its length for the duration of the note. In this way amplitude is taken as the most important parameter in determining the speed of the bow, a fact that relegates the parameter of timbre to a secondary position. Questions thus arise as to the extent to which this criterion can be taken as appropriate, and how effective it is in today's performance practice. Here the concern is not the fact that the decision is left entirely to the performer, but that the criteria used for deciding bowing speed are heavily dependant on a particular aesthetic that is mainly orientated around amplitude – an aesthetic which has relatively little significance in the practice of violin playing.

On the other hand, the range of degrees in bowing pressure is relatively new to violin playing. Because gut strings can produce stable vibrations only within a narrow range of pressure (beyond this range the non-harmonic components overwhelm the harmonic), varying of bowing pressure didn't become fully available until the introduction of the steel E string, which completed the evolution of an

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[156] Stowell observes that the phrase 'the soul of the instrument it touches' is used for bowing technique by many writers on the violin from Bismantova (1677) to those of the twentieth century. The phrase includes all kinds of bowing technique, but one cannot deny the prominence of bowing speed in their discussions on the connection between technique and musical expression as most obviously exemplified in Baillot and other writers of French school. Robin Stowell, 'Technique and Performance Practice', *The Cambridge Companion to the Violin*, edited by R. Stowell, Cambridge University Press, Cambridge, 1992, p. 270.

evenly balanced set of durable strings. The use of steel strings brought brightness into the sound due to their sensitivity to the higher frequencies. It also brought an increase in the stability of vibration of the string, leading to a more reliable pitch production and a wider range of possible amplitude. Bowing pressure itself has a very limited range of amplitudinal shades, and indeed its expressive power is primarily in controlling timbre. The fact that pressure has direct links with speed as far as the bowing arm is concerned has lead to a close co-ordination between the two parameters of bowing. The difference in the treatment of the two parameters in performance practice is that, while bowing speed maintains an aspect that is concerned with musical expressivity, bowing pressure is considered more as a matter of foundation in instrumental playing.[157]

On the modern violin, timbre is varied more significantly by the point of contact between the bow and string than by the degree of bowing pressure. Nevertheless, the timbral variety produced by different degrees of pressure is crucial under the circumstances of standard performance practice, where the point of contact is limited to an area of about a centimetre in size at a distance of a few centimetres away from the bridge. Thus, when a required expressive content specifies a particular dynamic range and musical character, the degree of bowing pressure becomes vital as a counterpart to bowing speed in determining timbre.

The following examples demonstrate the possibilities of expressive differentiation which bowing speed and pressure can together make in the context of music.

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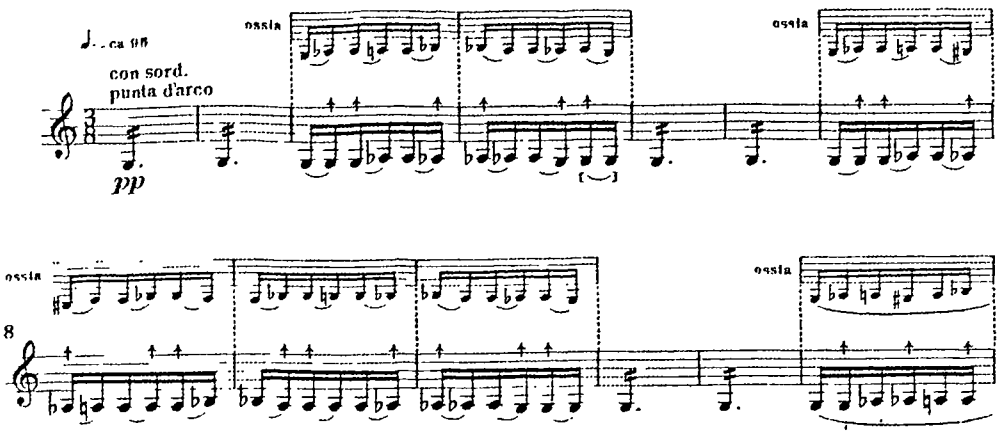
[157] Many of the twentieth century pedagogies of violin playing, such as Suzuki and Galamian methods, provide exercises in carrying the bow evenly, rather than those in carrying the bow expressively. It is fundamental that the violinist is able to control the pressure in the bow so that the sound does not betray the strength and weakness of pressure in the strokes. However, what is missing in this argument is precisely what is discussed in the nineteenth century treatises on bowing speed: the ways in which the character of the music can be created. Unless this aspect is discussed it is hard for a technique to become functional in musical context.

ii. Examples



Ex. III 8: Bartók Solo Violin Sonata – fourth movement[158]

The above passage has one indication referring to the bowing: '*punta d'arco*' (at the point of the bow). The *pp* and '*con sord.*' (with a mute) suggest softness in either or both amplitude and tone quality. The temptation is to play as softly as possible using a light and small bowing. Small strokes (which results in slower and gentler delivery of the bow) will certainly produce the required softness. Softness, however, is easily achievable with the use of a mute. This is to say that in using the mute the opposite is very difficult to achieve – playing either loud in amplitude or bright in tone colour. Here one wonders why the mute is used in this context: could it be that the mute is applied in order to facilitate something that is otherwise difficult (if not impossible) to achieve?

There are two compositional parameters that produce motion in this passage and may need to be articulated despite the softness of sound in this opening passage: the melodic sequence of pitches and the rhythmic structure that characterises it. When one regards the first four bars and the following six bars as two melodic units, two features appear to have structural significance: one is the slight rise and fall in pitch in each unit, and the other is the sequential pattern of the held note (G) followed by the moving notes. The contrast between the two melodic materials – the held G and the small rise-and-fall figures – is strengthened by different rhythmic articulations. The paired notes in the latter half of the melodic unit smooth the surface of bowing activity when pitch is in motion. Indeed if these figures were

[158] Béla Bartók, Sonata for solo violin (1944), Hawkes & Son, London, 1994, p. 14.

played in separate strokes in the manner of the repeated notes which precede them, the clarity of pitch intonation would be obscured because of the level of bowing noise. On the basis of these considerations, appropriate measures should be taken to ensure that the contrast between stasis and motion can be clearly heard (although the 'motion' is within a microtonal range of up to major third).

The problem is that playing in *pp* at the point of the bow with a mute can easily obscure the melodic structure, because a decrease in amplitude below a critical level results in a decrease of clarity. Hence one can opt for the view that the mute is employed in an effort to prevent the amplitude from exceeding what is appropriate in this context, *pp*. This suggests that the actual bowing action can be much more active than the notation appears to indicate. This will also create a space for manoeuvre in which means to support the melodic structure can be found.

The required melodic articulation can be brought out by two means: by increasing bowing speed, or by increasing its pressure. On the one hand, increase of bowing speed may disturb the evenness of tone colour and will inevitably raise the level of noise. However, if an increase in bowing speed is made under a particular set of conditions, the articulation of the melodic structure can be enhanced without changing its character. By selecting a point of contact on the string where bowing speed affects the tone colour less significantly (such as the *sul tasto* position for example) clarity of sound can be maintained. The increase in the horizontal (parallel to the bridge) motion of the bow also dissipates the non-harmonic noise of the friction at the beginning of each stroke into a continual background noise. This may not decrease the amplitude of the noise: however, the fact that this noise is *continual* can complement the timbral fabric of the passage.[159]

On the other hand, the option of increasing the pressure has the advantage of producing more rhythmic articulation by giving more shape within each pair of notes

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[159] When bowing speed is increased without corresponding increase in bowing pressure, the resulting sound cancels out the noise of stroke changes with that of strokes themselves, thus transforming the effect of the relevant functions of the bow. The same effect is produced when the pressure is decreased beyond the range in which the bow establishes stable oscillations. Bernard Richardson gives a technical explanation of the acoustic effect of this 'imbalance' between the two: 'for stable oscillations the bow force must lie between a maximum and minimum value, each dependent upon the proximity of the bow to the bridge and the bow's speed. If the bow force [pressure] is too low, the string tends to slip two or three times per cycle, producing whistles or accentuating certain string harmonics and giving a 'ghostly' sound. At the other extreme, the tone becomes raucous or 'gritty' . . . .' The imbalance produces a noise similar to that which occurs at stroke changes. However, the range of pressure discussed in this section is between the normal and light, and the 'gritty' sound as described in Richardson is not the type explored here. Bernard Richardson, 'The Physics of the Violin', *The Cambridge Companion to the Violin*, op. cit., p. 35.

(a *crescendo* and *diminuendo* in each stroke), because the melodic line can be brought out by the slurred groups of two notes. However, one needs to consider the possibility that it may also multiply the frictional noise at the points of stroke changes: at the given speed (dotted crotchet = circa 96) one can control the pressure within each stroke only to a limited extent, so that the elimination of the noise at the stroke changes by lightening the bow will be a difficult task. Unless a good exploitation of this noise is found, an increase in bowing pressure may decrease the character of the passage.

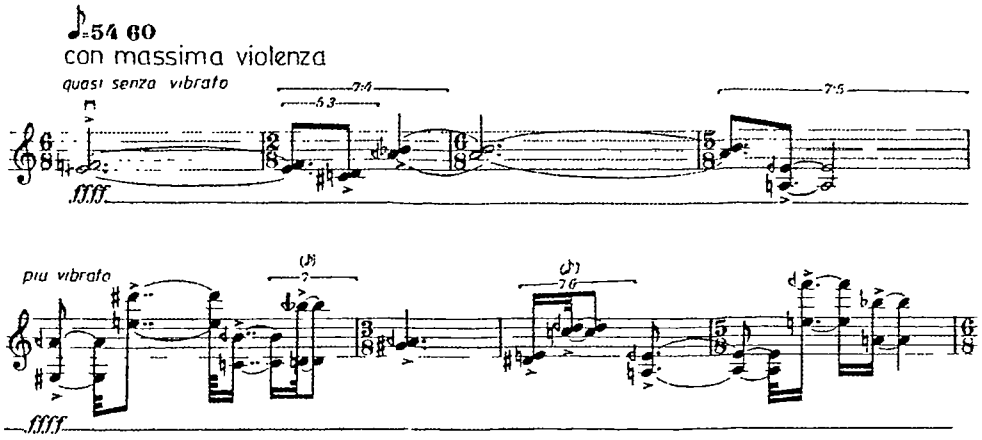
The use of the mute suppresses noise (non-harmonic partials) as well as the higher harmonic partials of the sound. The mute thus helps not only to minimise the increase in bowing noise but also to keep it as a marginal effect while the fundamental tone and the lower harmonics are maintained.

Each of the options described above can produce clear differences in the performance of the passage. Nevertheless, they are united in their subversive approaches: as ways to effect a specific musical articulation without apparent changes in the given indications – indications which are otherwise open to compromise.

Of course *if one considers that all the parameters are meant to be subdued in* softness including that of melodic articulation, the above interpretative options should not be taken at all. In this case, one has to find a way of understanding the significance of this passage in terms of the overall structure of the piece – a way that can compensate for the relative inactivity during a passage of such softness. This approach may involve, for example, finding a clearer structural definition of the passage in relation to the previous movement – such as whether the passage is a transition or an interlude. One will need to define a strong framework in order to articulate the expressivity of this softness that almost submerges expression.

What needs an urgent re-assessment is the standard critique whereby bowing speed is determined. The choice when holding a long note is a typical example of this. One may choose between two options: the first is to change the bow as many times as one considers necessary, and the second is to keep it in one stroke even when that means a loss of amplitudinal intensity and timbre. More clearly than any other case, the decisions made about the stroke changes during a held note can inform us about one's sensitivity to the relationship between bowing speed and amplitude in music.

Bowing indications (downs, ups and slurs) mark the points of change in the direction of the bow, but the ways in which either the composer or the performer gives these indications can illustrate their view of the hierarchy of different parameters within technique as a whole.



Ex. III 9: Ferneyhough Intermedio – *the beginning*[160]

How do we bow this beginning? It may seem that there is only one possibility in realising this passage. The combination of '*con massima violenza*' (with the greatest violence) and *ffff* suggests that the optimum amplitude is to be attained throughout. At quaver = 54-60, the first chord lasts more than six seconds. If the amplitude of the initial attack is to be maintained throughout the length of these notes, the bow must be changed at least once.[161]

However, changes of direction between the down and up strokes will be audible – particularly so in the context of the first chord where no other parameter is moving at all. A change of bowing direction here becomes inevitably *the first gesture* to occur after the piece begins. Is it consequential in the light of what comes after it – the rest of the piece? Or can we say that it is unavoidable and therefore it *should* be taken as an inconsequential necessity?

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[160] Brian Ferneyhough, *Intermedio alla ciaccona*, op. cit., p. 2.

[161] David Alberman considers these stroke changes as unavoidable: 'The ffff marking of the first note of Ferneyhough's *Intermedio* suggests a very intense sound which should dominate the musical context. We need to project the sound using a bow speed that means some bow changes during the held chord will be inevitable (though the fewer the better) . . . ' David Alberman, 'Beyond the Conventional', *The Strad*, Orpheus Publications, Harrow, Vol. 109, No. 1296, 1998, p. 376.

What is being questioned is the priority of co-existing parameters in the music. It is true that the required amplitude and its resulting intensity have a paramount importance in this passage. Nonetheless, introducing stroke changes will certainly weaken the temporal character – a total lack of momentum in the opening bars.[162] It is unavoidable that stroke changes will upset the static tension. From this point of view the risk involved in the question of stroke changes is considerably high.

If the above passage is played in a manner of stroke per chord, the *ffff* will be lost. However, when one puts the *ffff* aside, the stroke-per-chord option can not only maintain the character of the *con massima violenza* but also strengthens it with another dimension. The rhythmic stasis provided by the slow stroke allows beating between the held notes to be heard by the ear, owing to the slowness of the stroke which minimises bowing noise and allows enough time for the beating to stabilise. The beat phenomenon brings a slight increase in amplitude – although it will not be enough to compensate for the difference between fast and slow bows. Nevertheless, the significance of the beats is that it will add another level of audible friction, thus enriching the intensity of the sound.

This option perhaps goes against the convention that bowing speed is largely responsible for generating a given amplitude. Both choices are equally valid: the question will ultimately depend on whether one understand the *ffff* to be literal or symbolic.

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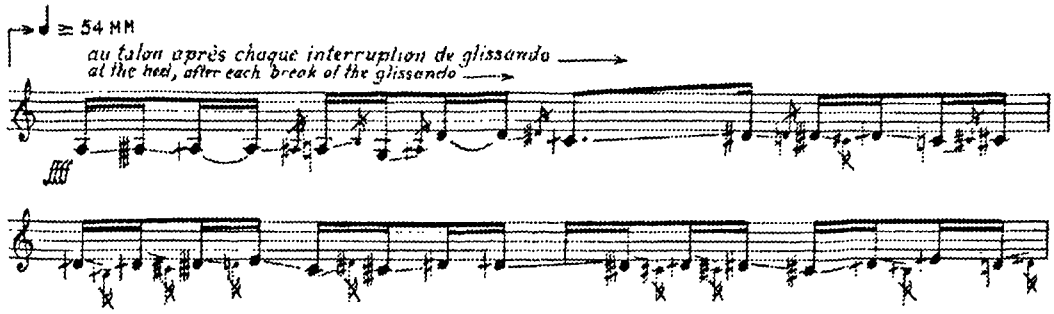
[162] Roger Marsh argues that, in this passage, there is very little in a performance to suggest the complex use of irrationals present in the printed text and offers an alternative notation. While doing so he also mentions that the audible re-bowing that takes place in the first and third chords may well affect the perceived rhythm of notation. Both his comments indicate his conviction that perceived rhythm is an important criterion in determining how rhythm is notated and invites a re-investigation into the relationship between notation and performance of musical rhythm. The question of appropriate rhythmic notation points to the increasing distance in the relationship between what it says and what it sounds like. The re-bowing suggests that more than just the notated rhythms contribute towards the perceived durational structure of the passage. His discussion leads ultimately to the question of the purpose (why such complexity is necessary) and function (what makes notated details distinct from other articulations involved in music) which musical notation carries within itself. For example, one could argue that in the above instance the representational difference between rhythmic notation and its performance can be compensated for the unique effect Ferneyhough's notational style produces in performance practice: it emphasizes durational structures – in this case the total lack of momentum – over more readily perceptible rhythmic pulse. In this it is apparent that bowing changes have a significant effect on the articulation of the durational character. Roger Marsh, 'Heroic Motives', *The Musical Times*, Orpheus Publications, London, Vol. 135, No. 1812, 1994, pp. 83-84.



Ex. III 10: Xenakis Mikka S *last section*[163]

In the above example, execution is made difficult by the repeated down bows which continue for almost a minute with very little interruption.[164] The fact that a whole down stroke is given to each note (or *glissando* unit) gives an impression that the bowing speed must be fast, an action which will also help the resonance and amplitude of the sound. However, one soon realises that this passage is actually too fast for such bowing to be employed. The performer is faced with four options:

1. to slow down
2. to bow it out (to take down and up bows alternately instead of repeating down bows)
3. to lighten the strokes
4. to shorten the strokes

The first option cannot usually be taken unless one can justify it for other than technical reasons. It can, nevertheless, been taken to an imperceptible degree if it allows a considerable improvement in the articulation of the specified gestures. The second option is permissible if it maintains the character which the repeated down bows signify. However, this option cannot even be contemplated unless one understands exactly the signified character of the repeated down bows in the given passage.

The question refers to what should be given expressive priority among given signs that are, without interpretation, incompatible. If one considers the dynamic to be the most important parameter here, it can easily be achieved by completely

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[163] Iannis Xenakis, *Mikka S* for solo violin, Salabert, Paris, 1976, p. 4.

[164] There are no down bow markings except the instruction 'at the heel, after each break of the glissando'. This indicates a new down bow stroke to be taken at every gap – in this context a retake of the bow will happen after the forth, fifth, sixth, eighth, twelfth quaver-lengths and so forth. A clearer indication (with down bow markings written in) can be seen in similar passages found in other works by Xenakis including *Dikhthas* for violin and piano (1980).

bowing it out. If the bowing articulation is to be prioritised, one has a choice of either lightening the strokes or shortening them. The third option requires a fast bowing action and produces an impression of the required duration of the notes. This will result in the passage having smaller gaps between the notes, but each note will be much weaker in character and may even be less rhythmic. A decrease in strength of character occurs as a result of the *diminuendo* at the end of each note, which a fast bowing action cannot avoid.[165] The rhythmic slackness is more likely to appear as a result of fast bowing that increases the bowed area to be controlled. The last option – that of shortening the strokes – maintains the pressure of the bow, but the duration of the notes will sound much shorter owing to the fact that there will be less resonance after the bow leaves the string.

Convention would most likely favour the second or third option because, once again, the dynamic of the notes can function as a critique in determining bowing speed and, consequently, the rest of the bowing technique. The resulting performance will illustrate the fact that exactness of the dynamic is the most important parameter after that of pitch in acoustic representation.

The fourth option limits the expressive range of bowing speed, but it introduces the possible exploitation of another important technique of the right-hand: bowing pressure. The option of playing the above passage with very short strokes suggests that the sound production depends on the other two dimensions that are also fundamental in bowing technique on the violin: bowing pressure and the bow's point of contact. Here we will focus on the aspect of bowing pressure in order to clarify its relationship with bowing speed in this particular context. The issues of bowing point concern the vertical movement of the bow (the same direction the left-hand moves against the string), which is clearly a compositional parameter in many of Xenakis' works. However, as they embrace a particular range of expressivity which deserves a closer investigation on its own, it will be discussed later.

Shorter strokes have the disadvantage of finishing the sound abruptly, a feature many people consider one of the problems of 'bad violin playing'.[166] In the

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[165] The amplitude naturally decreases within a downward stroke unless an effort is made to maintain it by increasing either speed or pressure within the stroke as it moves away from the heel. Increase in bowing speed also results in producing resonance after the bow leaves the string: this resonance will decay within a very short time, but contribute in creating an illusion of a gradual decay within the bowed length of the note.

[166] This is best observed in a poor quality playing imitated by a good violinist. The constituent features of such playing are, normally, poor intonation, poor co-ordination between the left and right hands, and the sudden jerks and stops of bowing actions (as if operating poorly conditioned machinery).

above example when one takes smaller bows it diminishes the length and size of resonance after the bow has left the string in order to go back to the heel for the next stroke. The resulting effect is that it produces a black-and-white contrast between the notes and gaps – gaps that aren't so clearly perceptible in the other ways of bowing. However, there are two advantages in choosing this performance option: one is the increase in the density of sound which bowing pressure brings by introducing noise elements in the string vibration (creating a stronger timbral character) [167]; the other is that using slow strokes helps to control bowing movement – in particular, against the natural flexes of bowing actions.

Going back to the passage itself, what possible interpretations can be found for its repeated down bows? There are two approaches: to focus on the character of repeated gesture itself or that of the overall result. The following diagram shows the difference between the two options.

	Character of repeated gesture	**Character of the overall result**
Fast (light) down bows	• Long and sonorous strokes • Strong attack with a decay in amplitude and density as the bow goes near to the tip of the bow	• Series of glissando in varying length • Bow attack becoming the predominant feature
Slow (heavy) down bows	• Shorter strokes with stronger pressure	• Same quality of sound is maintained throughout • Clear binary effect ('on' or 'off')

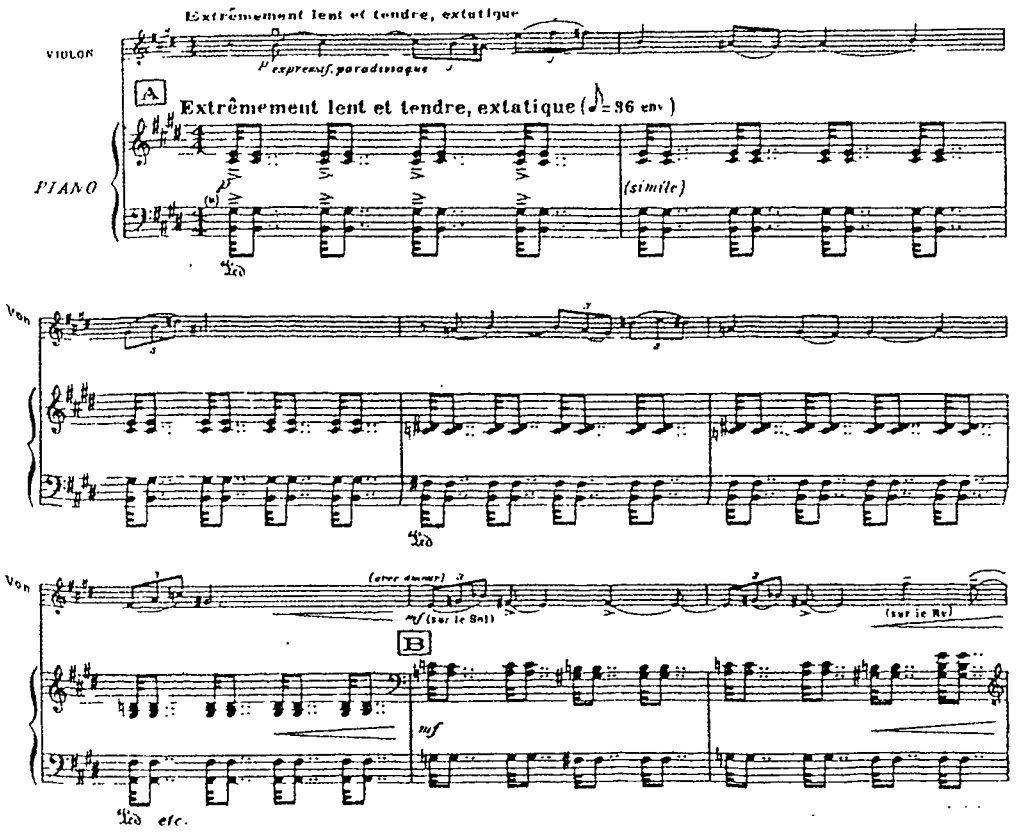
If the increased force of attack in every stroke is the aim of the repeated down bows, the question of bowing pressure is of no consequence since the down bows can produce pressure automatically by their force of attack, and releasing the pressure after every attack will increase the significance of the attack. If the contrast between

[167] Bowing noise as discussed in the Ferneyhough and Bartók examples is an accidental noise that comes with bowing actions to be added to the already vibrating string. The noise brought by bowing pressure in this example is an integral element of the vibration because it is *continual*, as it maintains the balance between the harmonic and non-harmonic partials long enough to create a *timbral* identity (rather than the identity/character of a bowing action).

the varying lengths of glissandi and their rhythmic irregularity are the aim, fast strokes can differentiate them by the shift of contact position along the bow with the string. But if the dramatic tenacity of repeated content is the focus of these down bows, the question of bowing pressure gains utmost importance. This tenacity is achieved by the continuity within the repetition. This continuity is not only the continuity of repeated action, but also the stable continuity of the other timbral parameters *through* the repetitions. The articulation of the repeated action relies on the background of the continuous fabric of timbre. This can only be achieved by the uniformity of sound at every level of sound production.

The natural spring in the bow helps the sound to release its tension through the decay of speed and pressure in every down-bow. This is a useful tool in performing music with an expressive gesture that directly responds to the natural law of tension and release – an aesthetic widely employed for a large part of the history of performance practice. Indeed the modern bow was invented according to the aesthetics of violin playing in the second half of the eighteenth century, at the height of the global effort to bring human actions into the most desirable accordance with nature. Because of this fact, a manipulation of the inclinations embedded in the bow's construction may become necessary when one observes that the musical content requires a sound that goes against this traditional aesthetic view. Then, a thoroughly conscious effort must be made to achieve the desired articulation through the bowing.

Bowing pressure may seem much less significant than speed, partly because many violinists operate it instinctively. However, they are both equally important in creating the volume – the energy – of sound, which embodies all musical articulations including pitch and rhythm. This cannot be better observed than in the last movement of Messiaen's *Quatuor pour la fin du Temps, Louange à l'Immortalité de Jésus*:



Ex. III 11: Louange à l'Immortalité de Jésus *from the Messiaen* Quatuor pour la fin du Temps – *the beginning*[168]

Some of the notes are very long at this slow tempo (quaver=36). The performer is forced to choose between changing strokes while maintaining a relatively slow and light bow, or keeping it in one stroke while delivering the bow across the string at the slowest possible speed. The latter option exposes the sound at the point of breaking up, producing a juddering sound. This movement is certainly not comfortable to play. However, the mental as well as physical awareness of being forced to move to the limit of sustainability is no doubt part of this music – an aspect also seen in the fact of its extreme slowness. Here consistency and control of bowing pressure matter just as much as those of bowing speed do. In order to achieve the musical expression suggested here, one requires an imaginative understanding of the music as well as a critical understanding of all aspects of bow control. A consciousness of the functions of (and interrelationship between) bowing speed and pressure becomes vital especially when the music suggests what seems beyond the

[168] Olivier Messiaen, *Quatuor pour la fin de temps*, Durand, Paris, 1942, p. 50.

possibility of execution for the performer or when one's instinct fails to find a desired timbre and articulation.

The possible range of bow speed and pressure is immense. In conventional performance practice, this range is narrowed by the limited range within which stable vibration occurs (thus producing pitch); experimentation and trained instinct can provide a solution to any problem as long as the problem remains within the range of 'pure sound'. However, it must be pointed out that, as seen in the foregoing examples, when the musical content requires a sonority *beyond* this acoustic band a critical understanding of the relationships between speed and pressure becomes indispensable.

5. Vertical actions of the bow[169]

Varied points of contact and their relationship with the musical context

i. Discussion

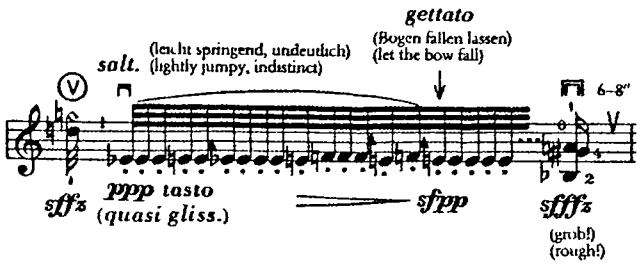
The range within which the bow can contact the string is defined by the length of the touchable surface on the string – from behind the bridge to the nut (where the strings are carried over into the pegbox). When one moves the bow at various points of contact in this available range a surprising amount of pitched sound can be produced. However, the range is normally confined to a small area two or three centimetres away from the bridge of the violin. The instrument is set up in such a way that bowing actions taken within this area produce the maximum resonance for the intended pitched sound, and this fact is established to the extent that it almost denies the possibility for any other possible range of bow contact to be equally expressive. The variety within this small 'optimum' area is often linked with the parameter of bowing pressure and described in terms of acoustic effect such as 'brilliant', 'intense', 'soft', and 'floating' sounds. As is the case with the horizontal parameter, the conventional range of the vertical parameter is in this way considered only as subsidiary technical knowledge in the service of limited timbral range. Thus in order to develop our consciousness of the expressive potential of this parameter a change of approach is required: to describe its variation in precise technical terms. However, the distinction between the two approaches is not always clear, and there are many instances where the function of this variation goes unnoticed and is often inappropriately understood.

For example, the way we use the descriptions *sul tasto* and *flautando* is often confusing. Literally speaking the former indicates that the bow is to be positioned 'on' (over) the fingerboard, while the latter indicates 'like a flute' – meaning a light and simple sound. The distinction is therefore that *sul tasto* is a technical direction while *flautando* is a musical one. However, confusion can easily occur because *flautando* usually needs to be played on the fingerboard. The common denominator

[169] 'Vertical parameter' refers to the movements taken parallel to the strings. However, these bowing actions may be horizontal once a particular point of contact is established. Thus it can be said that this section considers all the actions which can be described as having significant qualities due to a particular use of this technical range – the contact between the bow and string.

involved in both descriptions is the considerable decrease in the proportion of higher partials, making their sound much mellower than usual.

Such a distinction between the terms would not be necessary at all if *sul tasto* technique always produced a *flautando* sound and vice versa. The problem emerges when *sul tasto* technique is employed in musical passages where a *flautando* sound is clearly not appropriate – such as in a fast passage like this:



Ex. III 12: from Lehmann Arco[170]

We also find that a *flautando* passage with very high notes should not be played on or near the fingerboard. In this case pressure and speed control can achieve the effect of *flautando* to much better effect. Indeed *flautando* ultimately refers only to the effect, and *sul tasto* only to the point of contact.

Experiments in playing at varied points of bow contact – outside the conventional range – show a surprising amount of phenomena that are available to be assimilated into musical expression.[171] The unexpected pitches occur because of the harmonics which vibrating strings are capable of producing. The range of amplitude is much smaller than in normal violin playing – it sounds more like whispering or squawking. But perhaps the most striking feature is that the sounds produced have a considerably wide variety of timbre. As a consequence of the limited amplitude in this extended vertical range, the technique also diminishes the

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[170] Hans Ulrich Lehmann, *Arco* (1972/73), in *Pro Musica Nova – Studies for Playing Contemporary Music*, edited by I. Ozim, Breitkopf & Härtel, Wiesbaden, 1986, p. 28.

[171] Mari Kimura discusses subharmonics on the violin, whose practice enables the instrument to produce pitches below the open G string note. Technically speaking these subharmonics are Anomalous Low Frequencies and their production depends primarily on the pressure of the bow – based on the same principle as that found in the production of vocal subharmonics, which is controlled by the tightening of the vocal cord. She observes that the vertical positioning of the bow also has a vital importance in particular with regards to the control over pitch: according to her experiments six subharmonics can be produced within the range of an octave immediately below the fundamental pitch by changing the distance between the point of contact and the bridge. She also lists the age of the string and the number of added twists on the string as influential factors in producing more successful production of subharmonics. Mari Kimura, 'How to Produce Subharmonics on the Violin', *Journal of New Music Research*, Swets & Zeitlinger, The Netherlands, Vol. 28, No. 2, 1999, pp. 178-184.

amplitudinal variation between various bowing articulations which have considerable amplitudinal differences when they occur within the standard range. Thus resulting amplitude in this extended range of bow contact is contained within a range of softness regardless of different bowing manners (such as horizontal and vertical strokes, *tratto* and *battuto* manners of bow delivery, *arco* and *col legno* bow contacts with the string).[172] On the other hand this increases significantly the variety of articulation – as if the sounds that had been suppressed until now by the dominance of amplitudinal values become suddenly liberated and pertinent to musical expression.

Thus there are three aspects that can be considered as significantly relevant to the technique of vertical actions of the bow:

- Timbral variety by changes of contact points
- Bowing manner
- Pitch

The first two aspects have a vital effect on the timbre which bowing can produce. The timbral range these two aspects offer by means of vertical range of bow contact can thus be considered as a parameter. Indeed these two together determine a large part of the timbral identity which the variation in the vertical range of bow contact can bring to music, and melodic expressivity (pitch organisation) complements this timbral identity by providing a relevance to the conventional musical language through its extremely soft amplitude in performance.

Incidentally, we may ask what advantage there is in describing the vertical parameter purely technically – without referring to the effect produced by it. Some of the actions can be described as 'scraping' or, as in the aforementioned case, *flautando*. One may argue that many of these actions produce sounds that are aesthetically outside the standard range of musical expression, so there arises the need for technical instructions as to how to make such sounds. This is particularly true when these sounds are employed as *extensions* to the normal range of sounds in

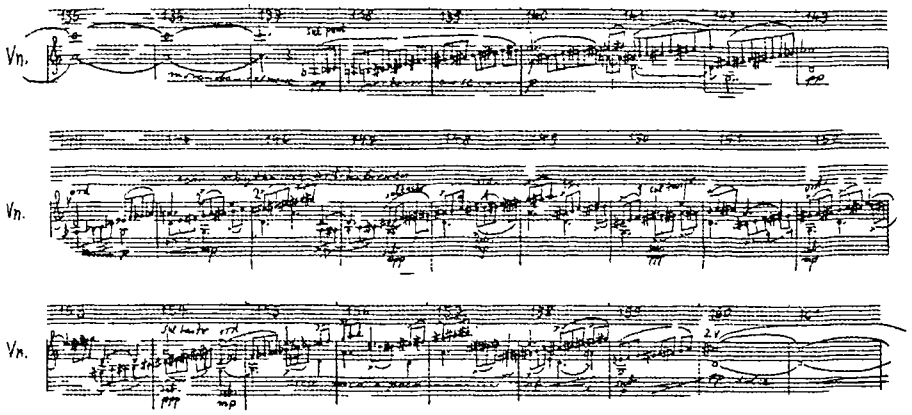
[172] When these bowing manners are carried out in the conventional range of bow contact, amplitude strongly favours horizontal stroke to the vertical, and *arco* to *col legno*.

a composition.[173] However, there are compositions which integrate this extended range of sounds as a critical dimension to their musical expression, and at the same time justify their need for technical instruction rather than indicating the resultant effect. The following discussion examines the individual ways in which the vertical parameter of bowing movements functions within the expressive mechanism of these compositions.

ii. Examples

In Richard Barrett's *air* the score is presented in four strata (see Appendix II for the musical example): points of bow contact, bowing pressure, pitch and rhythm, and dynamic.[174] We can look at the notation imagining that the three technical strata – points of bow contact, bowing pressure, and dynamic – are to be applied to the surface of the other stratum of pitch and rhythm. This view certainly helps in finding a procedure to learn the piece. We can also observe that there is a clear contrast between the technical strata and the musical notes. The main feature of the former is the vertical actions of the bow (indicated at the top of the stave) which produce diagonal movements across the surface of the instrument. This layer has close links with the other two technical strata, bowing pressure and dynamic: for example, in the first bar of the second stave the bow moves from *psp* to *mst* and back to *psp* while concurrently the pressure changes from heavy to light and back to heavy pressure by the end of the bar. The dynamic has two levels: *fff* to *f* in the down-bow

[173] A notable example of this type among contemporary composers can be found, for instance, in the use of *sul pont.* and *sul tasto* indications in the second movement of György Ligeti's Horn Trio (1982). György Ligeti, Horn Trio (1982), Schott, Mainz, 1984, p. 20.



[174] The composer supplies performance notes. See Appendix II.

and *ppp* to *f* in the up-bow. The dynamic *shape* is symmetrical between the down and up bows: the down-bow decreases its power as it moves away from the heel of the bow, and the up-bow increases its pressure as it nears the heel. But their *size* is different: the beginning and end of the down-bow are louder than the corresponding positions in the up-bow, due to a gravitational weight the down-bow gains. This combinatory formula continues in the following two bars with small variations. Thus the diagonal bowing actions in these bars are continually accompanied by a decrease and increase in bowing pressure and dynamic, both operating on the basis that the down-bows are always larger in their scale.

The bowing gestures have a metaphorical dimension. The piece is 'concerned with an analogical relationship between the movements of the bow and the process of respiration, which should be emphasised in performance: downbows as exhalation, upbows as inhalation. . . . any resulting distortions or uncontrollability of the sound [should be] taken as stages in a composed process, involving the gradual breakdown or "expiration" of the initial model.'[175] This suggests that the work could, in theory, retain an expressive narrative without having 'notes' at all. However, by coming into contact with the 'notes', the pre-determined elements, the technique reveals the central issue of the work.

The expressive crux of the work is that the acoustic outcome depends totally on the specified techniques and the individual context in which these techniques are carried out. In the composer's words the piece 'represents an attempt to allow the instrument – and its relationship to the hands of the player – to determine the material of the work, from its individual pitches to its overall form.'[176] This is the point at which the work expresses its artistic aim most clearly, that 'no distinction is made between the technical and expressive identity of this music (a feature it shares with its darkly-glimpsed antecedents in early baroque violin music). An instrument, after all, is not a "note-machine" but a means to articulate an "erotic dialogue between body and intellect" . . .'[177]

Air shows us the extent to which vertical actions of the bow can affect the outcome of the pre-determined elements, as well as the power of expression this

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[175] Richard Barrett, *air*, United Music Publishers, London, 1993, p. i.

[176] 'Composer's Note' by Richard Barrett for *air*, made available separately from the score, by the United Music Publishers, London.

[177] Ibid.

range of movements has on music. From the performer's point of view it is strange to see in the notation two distinct sets of markings simultaneously: what is already determined by notation (notes) and what is still *to be* determined by action (technique). This conflict raises the question of whether the notes should have priority of attention, since without them the technique does not have any object upon which to operate. It can be counter-argued that the expressive power of the technique is so prominent in this case that the notes are mere shadows of the substance in the piece. In practice, what we see in the performance of *air* is a performer creating a piece by using a set of techniques as a vehicle for self-expression. This may appear to be almost a work for *virtuoso* in the traditional sense, but the fascination of the piece is in the fine balance between the flair of the performer to find appropriate contextualisation and the dexterity of the composer to set out the structural framework in terms of both technique and expression.

Mathias Spahlinger's *adieu m'amour* offers another example of employing vertical actions of the bow, but engaging the technique in a closer co-ordination with a range of left-hand techniques (for the musical example and performance notes see Appendix II). Both the violin and cello have two staves each: the upper staves (the first and third in the system) describe the audible result of performance actions, whereas the lower staves (the second and fourth) indicate the means of execution. The piece uses *scordatura* to a significant degree and in the lower staves the composer indicates all the pitches including harmonic effects in transposition (that is to say a C is written for the concert pitch G on the G string which is tuned down the perfect fourth).

After a tiresome process of following the performance notes and carrying out the techniques in the context of the piece the performers encounter a number of challenges. First of all, we discover that more than half of the sounds do not produce their intended pitch result. Or the pitch can be produced but not with the designated timbral character. Such problems arise because the degree of specificity in the means of execution does not always allow a margin for contextual variations such as the characteristic behaviour and conditions of individual instruments. These challenges can be summarised in two questions: how important is it to produce the melodic lines described in the upper staves of the score, and how important is it to follow the exact means of execution?

In the first movement (as cited in Appendix II) the music evolves around the nodal pitch B and produces its phrase structure by means of going away from and coming back to B. In this sense the pitch structure has vital importance. A closer look at the phrases shows further details. The first phrase, from the opening to the beginning of bar 7, has altogether 11 notes on B shared between the two instruments. All of them are executed differently except the last two repeated Bs on the cello. The violin part starts with the bow positioned halfway between the left-hand finger and the bridge (see the performance notes in Appendix II), and in the second gesture two bars later the bow plays below the left-hand (in this case, in order to facilitate the bowing, the left-hand finger presses the note from the other side of the fingerboard – the side where the thumb is usually positioned).

The bow comes nearer to the normal playing position for the first time in bar 5. Meanwhile the cello's bow starts close to the normal position and moves away quickly to the middle of the fingerboard in the gesture leading into bar 5. The open string sounds at the 'standard' position with a 'normal' manner of bow delivery by both instruments at the beginning of bar 6, therefore contrasting with the timbral qualities of the preceding bars in which the sinewy violin sound and the taut high harmonics of the cello sound predominate. In this way the timbral variety on the pitch B is vital in producing the dramatic structure of the phrase. In other words, what links these varied timbres is their pitch, and this fact gives us a further insight to the possibility of a better presentation.

I suggest that because the pitch B is a vital reference point, all the B harmonics should be tuned to produce the precise pitch. This may involve minor alterations in the positions of firmly/lightly pressed fingers. In bar 3, for example, the lightly pressed finger at F sharp produces a pitch closer to C. In order to produce a resulting pitch B the lightly pressed finger should be positioned much closer to G (a semitone higher). Such alterations may appear to contradict the notation; but the range of selected techniques in the piece clearly suggests that all the pitch and technical indications are to be executed according to the harmonic overtone system of the strings. Hence a minor variation attributable to the individual strings/instruments should be allowed for a successful execution.

The issue that needs to be addressed next is that of dynamics. The dynamic level over the seven bars of the first phrase is between *pppp* and *pp*. When we compare the gesture in bar 1 and the open string note in bar 6 of the violin part, there

is an unmistakable difference in the timbral composition of the two: the former contains a high level of non-harmonic noise due to the two lightly pressed fingers whose resulting pitch is that of the upper finger when it is firmly pressed (hence the purpose of the two fingers is merely a fading of the pitch), while the latter hardly produces any noise except the fundamental pitch and its harmonic overtones. Naturally the open string note 'rings' more loudly and the other more 'noisily'. Meanwhile, the given dynamics are *pppp* at the loudest point for the open note and *ppp* for the first note. To which aspect of the sound should the markings apply? The overall amplitude of the sound including the noise, or solely the pitched elements?

When the overall amplitude is kept at the given level, it has to be the speed of the bow which controls the dynamic gradation, because the two other technical components for amplitudinal variation, namely bowing pressure and point of contact, are already determined by practicality and notation. By selecting the overall amplitude as the criterion for the dynamic variation, the performance produces a smoother amplitudinal surface to the music. The only reservation is that whilst sound is heard rather than silence, this sound may consist almost entirely of noise and as a consequence some of the pitches may be hardly audible (the held note over the third and fourth bar for example).

The other option of focusing on the pitched elements offers a different perspective to the music. When the pitched elements of the sound are focussed as the critical range of amplitude and maintained at the specified dynamic degrees, the amplitude of the accompanying noises can vary from one note to another. Hence the overall amplitude of some of the notes can be considerably louder than others – for example the overall amplitude of the note in bar 3 is louder (noisier). Such a perceptual change between bars 1 and 3 can be likened to a gestural transition leading to a faster sequence of gestures that follows in bars 4 and 5 thus creating more direction within the phrase structure. But perhaps the strongest feature of this approach is that different timbral characters stand out in relief against each other more clearly. One may argue that what we hear is the overall amplitude; however, both interpretations require thorough experimentation and certainly are open to modification – including a combining of the two approaches, as appropriate to the musical context.

Adieu m'amour consists of sounds and silences on the boundary between perception and illusion. Consequently the identity of the music rests somewhere

between what is heard and imagined. However, as the above observations suggest, the piece contains an ambiguity as to *what expression* should be perceived in the work. This question may appear to be a matter of interpretation; however, the question refers further in this piece to a unique manner of conceptualisation (or non-conceptualisation) of musical ideas – by virtue of exploring hitherto unfound timbral parameters and performance techniques. Because of its acoustic nature, this work is more likely than others to be perceived as being many different pieces through different performances which are loosely linked together by the structural outline, rather than simply producing many different ways of expressing the same musical ideas. This is to say that the objects to be expressed change more significantly than the means of expression, and that diverse soundscapes are possible without necessarily expressing always the same musical ideas; so that the identity of the music lies not in its metaphysical form but in the figurative/allegorical power within each performance, the power the composer encoded in the score.

Every performer (rather than the composer) will then have the responsibility to determine the objects of expression in this work. It follows that the timbral identity of each individual performance becomes a critical tool in this process. The identity of the work in this case is most manifest in the sensory quality of sound rather than in the metaphysical understanding of a given form of music, and this awareness is vital in understanding the unique orientation of the work's aesthetic philosophy. One may find it irritating, but perhaps the pleasure and depth of this music rests ultimately on the fact that there is no single definite music to be expressed. This may be no surprise if the notational circumstances were different; what is special about this case is that it proves not only that the complexity of notation does not hinder the interpretative space, but that it actually increases the space of ontological mutation of the musical work. The piece can be duly appreciated when we accept that the pleasure of experience can replace that of

understanding, amidst our most sincere desire for understanding the music we hear.[178]

It is not unreasonable to assume that the new aesthetic dimension Spahlinger offers in *adieu m'amour* is related to this particular bowing technique of vertical actions. Around the same time as Spahlinger's composition, John Cage took interest in the same technique to a totally different effect and produced a number of works including *Eight Whiskus* (1985) (see Appendix II for the musical example).

The composer gives clear instructions as to how the piece should be executed and what expression the performer may aim at (see Appendix II). Aspects that are particularly relevant in the present discussion are Cage's deployment of bowing pressure and position: he specifies them by giving independent parameters on top of the stave. The pressure parameter alters the intensity of the sound, while the bow position parameter determines the quality and degree of noise introduced to the sound. These parameters are given detailed markings, however, their musical functions in the context of the piece depend entirely on the other, more normative, parameters: melody, phrasing, and dynamic. When he says

> Seeming paradoxes, e.g. 5 and *p* together should be resolved by using a slower bow speed so that the sound though heavy into the string is *p*.

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[178] Susanne Langer's remark, discussed in Chapter One, that musical significance lies in the experience itself rather than in its ability to represent musical ideas, corresponds with the pleasure of experience discussed here. The difference between the two is that the music the experience of which Langer discusses can mostly be approached mentally, whereas Spahlinger's music refuses any approach of that kind. In other words, the pleasure of experience in his music emerges through casting away any other possible approaches, revealing the negation of any symbolic meaning as a principle aesthetic for the work.

The conceptual model employed here is comparable to that which makes a semiotic distinction between allegorical and symbolic forms of signification. Sergio Valverde writes that 'anything resembling symbolic supposes a hidden connection between the thing and the work or something, as Kant said, that does not correspond to any possible sensible intuition (*Kritik der Urteilskraft*). Sign as allegories are, on the contrary, something conventional, comparative, where the figure and its meaning are opposed to each other consciously, intentionally to express something rational, a conventional meaning. Even when Hegel saw allegories as part of the symbolic art (*Vorlesungen über Asthetik* III), allegorical signs express something very different from symbolical representations and that is temporality. This lack of temporal, narrative expression of the symbolic is, maybe, a consequence of that absence of every possible intuition. As Goethe put it in his *Nachlass*: "sign or allegory expresses a *concept* in an image ... symbol transforms an *idea* into an image in such way that any possible language can't express it" Adorno and Benjamin will later criticize this symbolic aesthetic on behalf of allegory. Because symbol expresses a metaphysical world instead of expressing the material one, so that its representation tries to merge with the ideal. Symbol is the principle of identity in the aesthetics and, in this sense, is metaphysical. As Hegel said "All reality is rational and everything rational is real" will be put in aesthetic terms as "everything beautiful is true and every truth is beautiful". Adorno will later say that "identity is the ur-form of ideology". Allegory or sign in this sense is totally the opposite: is the *principle* of difference, it refers to the non-being of the object.' From Sergio Valverde's posting to the Internet mailing list *Film-Philosophy* on 4th August 1999 (http://www.film-philosophy.com).

as an example, the dynamic signifies the overall sound. 'the sound though heavy' unambiguously suggests that the timbral 'heaviness' should not overwhelm or override the given degree of amplitude, *p*. In this way neither parameters of bowing pressure nor position are really independent in the musical context. However, when examined from the point of view of melodic articulation the technical parameters of pressure and position show a particular significance.

As the composer states, all the eight melodies are originally songs. When one sings them, or plays them in the style of singing on the violin, these melodies are unmistakably expressive songs. It is only when the other parameters of bowing pressure and position are added to the melodies, that they become 'strange'– introducing what can be perceived as distortions to these otherwise innocent tunes. Such distortions arise mainly from the vertical actions of the bow as this parameter produces primarily noise into the sound. The performance of *Eight Whiskus* is unique not only acoustically but also visually. The visual strangeness comes from the particular behaviour of the bow moving vertically across the fingerboard. It has an appearance of the performer's not being able to control the bow properly.

Are such distortions and abnormalities likely to hinder our appreciation of these melodies? Perhaps they do so when one tries to listen to the melodies themselves. But are the distortions and abnormality likely to hinder our appreciation of the music? The answer is no: because the piece would not be *Eight Whiskus* otherwise. The expressive feature of the piece is that the violin leaves behind its standard expressive language as a melodic instrument. But because of the absence of this language, the piece evokes the simple expressivity of a melody even more keenly.

This offers us a further insight into the expressive mechanism of the work. Initially, the objects of expression here appear to be the songs, but the sensory reality of the acoustic and visual elements which are weaved into the melodies gradually become the objects. These objects are changeable according to individual performances. Relative to the Spahlinger, the difference between the two works is that Cage's melody is fixed in the perception of the listener whereas Spahlinger's isn't. Cage's melody has a distinct function of being the one and only metaphysical element in the music: the work thus maintains a single identifiable form (*Ur-Form*) while the piece presented in time is extensively plural. However, there is no conflict

between the two in *Eight Whiskus*: the piece offers us an opportunity to savour the dichotomy between the two forms of being.

The existential instrument

The vertical parameter of the bow often shows prominently aspects of expressivity that were hitherto unknown in the instrument's musical language. Their quality of uniqueness can be explained by the opposing bias of traditional practice as well as in terms of the particular acoustic focus of excellence which the luthier strives to achieve in building the instrument. However, practising this technique makes the performer aware that so much of what we take the violin to be in its expressive identity is derived from the assumption that this identity lies in its richness and subtlety of melodic expressions, the qualities of which makes the violin closest to the voice (as observed in the seventeenth century). The past three centuries have not changed this legacy to any significant extent and melodic expressiveness remains a prominent characteristic in the identity of the violin today. This has also resulted in other characteristics of the instrumental sound remaining secondary in the exploration of the instrument's identity in Western musical discourse.

Toccatina (1986) by Helmut Lachenmann can be seen as a study in the re-evaluation of expressivity on the violin in defiance of this assumption (see Appendix II for the score and performance instructions). *Its pitch, rhythm, dynamic*, distribution of timbral variety, and dramatic effects are all within the realm of traditional formal structure. What is new in this piece is the manner in which these conventional forms are articulated. For example it is predominantly the right hand that determines the pitch (and timbre) as well as articulates them, and throughout the piece the vertical bow movement is more frequent than the horizontal. Here the expressive variety of the vertical parameter is not limited to bowing techniques: the square notes in the score describe the contact between the string and the screw of the bow at the points at which it produces the notated pitch (see the notes in Appendix II for a musical example and further explanation). Later on in the piece *pizzicato* between the bridge and tailpiece articulates an exclamatory gesture (second page, last system), a descending melodic line is articulated by *col legno saltato* (third page), and when the horizontal movement of the bow is finally introduced toward the end of the piece, the bow is confined to stroking at the scroll or on the peg.

The resulting amplitude of the piece is so small that the work gives an impression of a mime, as if one is deprived of a normal language. However, the distance between the actual sound and what we *think* we are hearing intensifies the expressive power of the material which we *are* hearing. The piece is more expressive than if the same material ware played in the standard language of violin playing. But the more important aspect of the work is that the resulting sound, regardless of how strange it may appear, does not only satisfy the range of expression required in the piece but also brings to light an understanding of the relationship between the physical instrument and musical expression.

Before moving onto a discussion of this understanding, we may examine the gravity this technical parameter has on violin playing relative to other techniques. One can observe that many of the vertical actions of the bow have led to a radical development in the ways in which a new technique can be successfully integrated into music. The reason for its radicalism is that there is a strong boundary around what the convention leads us to believe violin playing is (or ought to be). Whilst the other technical parameters examined in this chapter (vibrato, fingering, and speed and pressure of the bow) can be seen to extend or reinterpret the already existing expressive vocabulary on the violin, the parameter of vertical actions of the bow breaks this boundary to the extent that the notion of the expressive language of the violin itself becomes uncertain. This parameter shakes the epistemological foundation of expressivity on the violin as we understand it, by proving that every part of the instrument can produce musical expression as long as there is an intention to do so.[179] If the ideological musical language governed our actions of playing and our behaviour towards the language, performance would become a mere execution of the ideologically given values. The vertical parameter is perhaps one of the most narrowly specified values in this ideological world, a specificity reached by the mutual acceleration between the historically achieved acoustic economy and socially motivated convention. It is this ideologically-driven rigidity attached to the vertical parameter (and the barrier it produces around itself) that forces our creativity to react against its value.

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[179] The issue of musical intention provokes a wider range of questions concerning what music itself is and how a piece of music might be perceived differently between the composer and performer/listener. Works that involve a large portion of vertical actions of the bow raise questions such as whether or not the performed piece is still music, more often than works with a limited use of this technical parameter do.

Convention influences us deeply, so much so that our imagination is also affected by it while listening to music. In confronting the sound delineated by vertical actions of the bow, we become aware of a unique relationship between the reality of the sound and what this sound is expressing. The expressed object may be familiar, but the power of expression is reinforced by the originality of the sound and its means of production. The more original the sound and its means, the stronger the power of expression. This also suggests, inversely, that vertical actions of the bow are often vital indications of the degree to which convention is governing our imagination. By contrasting the past (convention) and present (the actual sound) and interpolating such an Existentialist view between them, this technical parameter stimulates the mechanism by which musical expression can be created and communicated. One may argue that it will lose its expressive power when the sound's novelty wears off. It may lose the impact it has in the first hearing, but it may be difficult to prove that its range of expression is poorer than that of the conventional bowing technique without taking recourse to conventional values.

Finally, the question of timbral identity: this technical parameter is perhaps the most obscure of the four technical parameters examined in this chapter in the ways in which it addresses the question. Beyond mere descriptions such as 'noisy', 'scraping' and 'whispering', there is hardly any understanding for this parameter to be integrated as part of the fabric of musical timbre. Perhaps we do not as yet have the sensitivity to appreciate the varying gradation and range of this timbre. However, as seen in the above examples, this technical parameter can be employed to a powerfully expressive purpose in music, and our developing an awareness of this aspect may be far more critical to our musical discourse than we think.

But the more important potential of this technical parameter and of the timbre it brings derives from the fact that its timbral identity conflicts with the notion of musical identity. By causing a larger amount of physical (and theatrical) movement vertical actions of the bow expose acoustically (and visually) greater variations between instruments, performers, and performances to our perception. The timbral identity thus fluctuates according to the different identity of each performance occasion. Music becomes intrinsically linked with the musician, and so does musical identity with the performance. By incorporating the vertical parameter of the bow the composer steps decisively into the realm of sharing the work with the

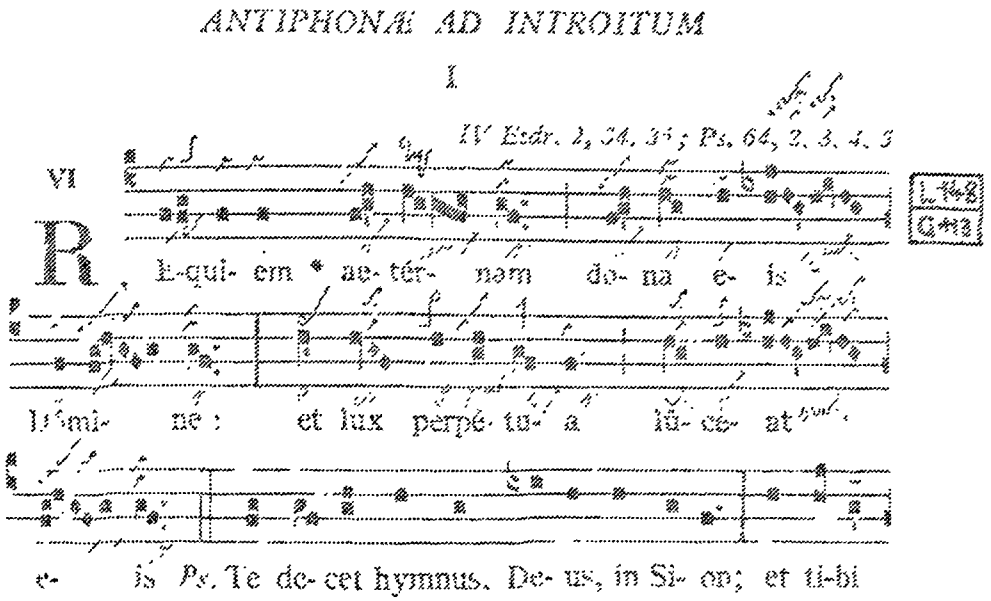
performer – as well as acknowledging that identity is an *Ur-Form*; and that forms of *real* existence ought to vary.

IV. Musical notations and their 'code of practice'

I have discussed the role of notation in relation to sound and the ways in which notation distinguishes the qualitative and quantitative elements of sound in Chapter Two. In Chapter Three I discussed the fact that a number of technical indications – such as those for harmonics and bowing actions taken in the vertical plane – operate in ways that are distinctly different from more conventional notational signs such as pitch and rhythm: the technical indications describe means of execution rather than sonic result, and the distinction between the two types of signs is vital in understanding the music which the notation represents.

Despite the fact that notational signs do not represent musical images completely (see the discussion in Chapter Two), few would argue against the immensity of the power notation exerts on us – a fact clearly visible in the practice of composers throughout history: the authority of musical notation has been maximised in such a way that stylistic development over the history of Western music is constantly manifest in the parallel development of notational systems. Therefore, with a view to understanding more extensively the role of notation in present day musical discourse, this Chapter examines first the ways in which composers employ specific notational systems in order to assess the variety of ways in which music can be notated and the variety of manners in which music can be conceived through the medium of notation. In the process of clarifying this, this Chapter discusses, secondly, the role of the un-notated or indeterminate aspects of music: the code of practice implied in individual notation.

Rhythmic indeterminacy in Medieval manuscripts: Hermetic semiosis in earlier forms of notations



Ex. IV 1: Introitum *from* Missa pro Defunctis

In the above Gregorian chant (Ex. IV/1), three notational systems of different ages and origins are given for the same music.[180] The outer two lines are in neumatic notation; the upper line originates from the Laon MS (tenth century), the lower line from the Saint-Gall MS (eleventh century). In both systems each sign represents either a note or a note-sequence.[181] The middle line transcribes them into the square notation used in the thirteenth century, a system by which we are able to decipher notes and their order more easily.

Neumes are graphical signs describing melodic movement and repetitions. The word *neuma* is Greek, meaning 'gesture'; the system is said to be related to cheironomy, the use of hand movements to indicate melodic movement, *neuma* being a graphic representation of the hand gestures given by the cantor. These signs give primarily an indication of a manner of delivery and also, to some extent,

[180] The example is taken from *Graduale Triplex*, edited by M.-C. Billecocq and R. Fischer, Abbaye Saint-Pierre de Solesmes & Desclée, Paris, 1979, p. 669.

[181] For the interpretation of the notation of the Saint-Gall MS, see Richard Rastall, *The Notation of Western Music*, Dent, London, 1983, pp. 15-26. Willi Apel gives examples of various primitive and square notations in his *The Notation of Polyphonic Music 900-1600*, The Mediaeval Academy of America, Cambridge (MA), fifth edition, 1961, pp. 204-281.

express a sequence of relative notes and their rhythms.[182] They are well adapted to describing ornaments. Neumes are, in other words, a filmic document of the cantor's hand-movement; they are reduced to two dimensional, static images like a series of photographs. In doing so, height and width fluctuations, those which yield directly to graphic expression, are best preserved.

Neumes are less well adapted to expressing parameters beyond the dimensions graphically depictable with individual neumes. The expressivity of neumes is limited to the graphic area they can cover. Therefore parameters of larger musical scale, such as pitch organisation and tempo, have to be expressed outside the basic neumatic vocabulary.[183] In the above example, some of the signs in the outer two neumatic notations also stand for pitch-names, whilst in the middle line the pitch is represented by the use of staves. On closer inspection we can observe that all corresponding signs have similar contours. In this way we can grasp not only the notes but also the vocal inflexion and grouping of notes in all three systems by learning their particular ways of graphically representing musical lines. It is only when trying to realise a performance of this chant that a problem arises in all three systems: we do not understand how fast the music goes and what the durational relationships are between the signs.

What signs do we have by which to infer information about the temporal structure appropriate to the material in the score? David Hiley suggests that these notations were sufficient for the community of musicians.[184] The durational ambiguity of older notations – their lack of fixed rhythmic values – supports the view that the musical community knew the chants well enough for the detailed notation to be unnecessary; also the text (words) was the primary source for determining the metre, and therefore what we understand as rhythmic indications were not of primary importance.[185] With regards to the latter, it is indeed not hard to

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[182] These notations were given as reference for cantors, to be consulted in the song-school and used during rehearsal, but not for singers to sing from liturgically. See for example, David Hiley, 'Plainchant Transfigured: Innovation and Reformation through the Ages', *Antiquity and the Middle Ages,* edited by J. McKinnon, Macmillan Press, Basingstoke, 1990, p. 122.

[183] Apel lists the bar-line and the tie as two of the devices unknown to earlier musicians, devices that most clearly differentiate post-16th century musical practice from that of the earlier centuries. Willi Apel, *The Notation of Polyphonic Music 900-1600,* op. cit., p. 85.

[184] David Hiley, 'Plainchant Transfigured: Innovation and Reformation through the Ages', op. cit., pp. 122-124.

[185] Hiley also points out the connection between rhythm and rhyme (ibid, pp. 129-130). For more extensive discussion with varied evidence about early notations of musical rhythm, see David Hiley, *Western Plainchant,* Clarendon Press, Oxford, 1995, pp. 373-385.

imagine that the rhythmic character of spoken words would be destroyed by the rigid signs of measured notation. Words supplied many of the clues for the music's temporal organisation, and the similitude between words and music was so self-evident that notation was not required to describe it. Additionally, when a repertoire had a continuous performance practice for a period, oral tradition and collective practice provided the necessary basis for learning and preserving rhythm. However, oral tradition would have largely applied to pitch too. The marked difference in the degrees of specification between pitch and rhythm in their notations suggests that Medieval musicians could make the same use of pitch notation as we do but certainly did without the use of rhythmic notation, contrary to what we do: the fact that they didn't require rhythmic notation (or didn't suffer to any significant degree through its lack) indicates the possibility that other principles for communicating durational intentions – unwritten ones – must have operated in such a way that they were as significant as notation.

Notation as a medium between the idea of a musical work and music as real aural experience functions under multifarious semiotic rules which need to be agreed among the people who use the notation. Indeed notation can only serve as such when the written objects are understood as signs. A large proportion of signs have universally agreed meaning in modern musical notations such that most of the works can be thus identified.

Up to the eleventh century there was very little universal agreement as to systems of notation. The first musical theory to become universally agreed was that of pitch indication, which was produced by Guido of Arezzo, before notated European polyphonic music began to develop as far as we know.[186] While pitch indication was developed and practised, musicians were also concerned with the relationships between short phrases and periods, and lengthening and shortening of notes. However, they did not have the concept of proportional values between notes,

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[186] For the details of Guido of Arezzo's contribution on the subject of pitch notation, see for example Anselm Hughes, 'Music in the Twelfth Century', *Early Medieval Music up to 1300,* edited by A. Hughes, Oxford University Press, London, 1954, p. 290-292.

what we now call mensuration, until the thirteenth century.[187] Consequently various extra-musical elements were employed secondarily for the temporal articulation of the music. Musicians found that various other phenomena can be referable to music in some way, such as speech in which the rhythmic inflection of spoken words can be understood to resemble those of music. Parallels were drawn not only from words but also from cosmology, theology and mathematics. In this way, creating and performing cultured music was a matter of creating multifarious connections between all matters – abstract and real, musical and non-musical. It follows that the production of signs (conceptualisation of music) also embraced the whole world of things.

Such a practise can be best observed in the Hermetic semiosis of the Medieval and Renaissance period. The prevalent view at that time was that the relationship between the signifier and the signified can be formed on a variety of grounds, particularly on the grounds which can be described as 'iconic' in Peirceian linguistic terms. An iconic ground is formed when the two objects are related by their *resemblance*. For example, music and cosmology can be related as they resemble one another in their act of manifesting Divine Proportion. But iconicism can be present in anything: one of the characteristics of this semiosis is that it has an unlimited capacity to broaden the ways in which signs are understood.[188] The Medieval world permits everything to be related 'with everything else by a labyrinthine web of mutual referrals. It seems thus that Hermetic semiosis identifies in every text, as well as in the Great Text of the World, the Fullness of Meaning, not its absence.'[189]

In this context, writing things down, that is to say conceptualising images into a concrete state, does not restrict the objects which the sign can signify: on the contrary the act of writing encourages proliferation of meaning for the given signs.

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[187] The common employment of mensuration beyond percussion music is unique to Western musics and no other musics have fully incorporated mensuration to the same extent: for example, Japanese Kabuki dancer Tamasaburo Bando famously described the character of mensural music in comparison to that of non-mensural one as 'being constantly pecked at the back of the head', when choreographing a Bach Cello Suite. A television documentary on music and dance: Bach Six Cello Suite, NHK, January 1995.

[188] Eco writes that '[Hermetic interpretation] is based on the principles of universal analogy and sympathy, according to which every item of the furniture of the world is linked to every other element (or to many) of this sublunar world and to every element (or to many) of the superior world by means of similitudes or resemblances. It is through similitudes that the otherwise occult parenthood [link] between things is manifested and every sublunar body bears the traces of that parenthood impressed on it as a *signature*.' Umberto Eco, *The Limits of Interpretation*, Indiana University Press, Bloomington, 1990, p. 24.

[189] Ibid., p. 27.

The use of written signs differs from aural transmission of the same information in the sense that an interpretation of the signs can develop without any reference to the original entity which the signs represent. While aural transmission interprets the original entity based on the criteria of similitude, a sign-based interpretation has no direct reference to this entity except through the medium of written signs. The sign produces an unlimited number of meanings in any direction, the meaning of one sign is always altered by another meaning, and as the number of meanings increases the need for overall meaning becomes less significant. In the end, what matters most is the particularity of individual connection, rather than its universality. Despite this tendency to develop into unsystematic and esoteric paths of signification, signs nonetheless maintain a high degree of communicative power between the adjacent communicators who use the same signs, because of the *meaningfulness* particular to the context of each communication.

The unique and diverse ways in which Medieval people found similarities ('parenthood') between dissimilar objects is hard to decipher. But they can be seen to explain why varied cultural practices developed in such a rapid flux of transformation, linking all that could be linked in the world. Marcel Pérès describes the cultural climate as follows:

> the problems of the organization and classification of rhythm were not yet accessible to the mentalities of the 12th century. We have to wait until the end of the 13th century for that. It was not until that period that musical theoreticians were able to benefit from the general advances in the methods of apprehending the phenomena of duration. Before that the perception of length was inseparable from the musical material itself; the lengths of notes could not be perceived in abstract terms. The 13th century marked the transition from organic rhythm to a rhythm that could be measured by numbers.[190]

and suggests that the rhythmic and temporal organisation of Cistercian chant relies particularly on the extremely reverberant acoustic of the newly built Cistercian churches:

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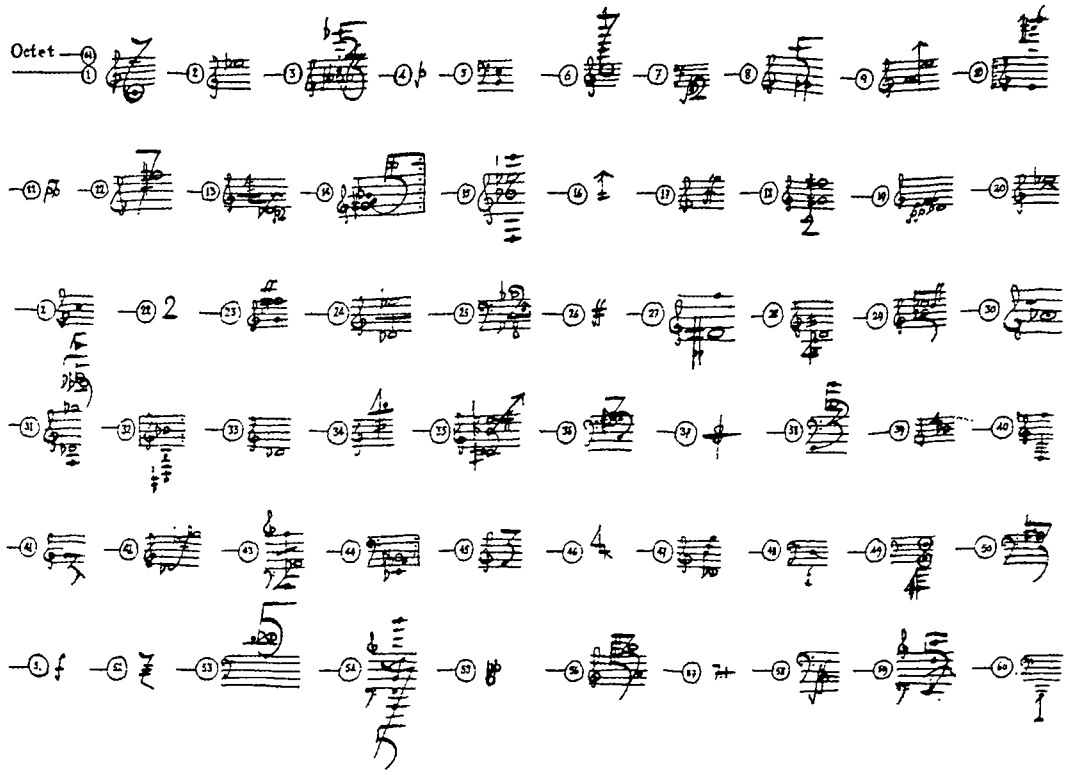
[190] Marcel Pérès, CD sleeve notes for Ensemble Organum, *Chant Cistercien*, Harmonica Mundi, Arles, 1992, pp. 9-10. There were exceptions such as Perotinus, whose composition in three and even four voices marks a considerable development in the area of rhythmic organisation in polyphonic music. For the detailed accounts of Perotinus' work, see for example Craig Wright, *Music and Ceremony at Notre Dame of Paris, 500-1500*, Cambridge University Press, Cambridge, 1989, pp. 288-294.

> these characteristics permit one to really hear the sounding, throughout the entire duration of the piece, of the principal notes that recur with great frequency. The amplifying of the harmonics of the voice engenders the distinct perception of the resulting overtones of the fundamentals, octaves, twelfths and even, in certain cases, seventeenths. Thus, without having recourse to the artifices of polyphony, a single voice, or the chorus in unison are able to produce harmonies that are not the work of the human will, but the effect of the fundamental laws of the vibration of sound-bodies, physical harmony, the impulse of matter that, by means of the absolute logic of its laws, renders the timelessness . . . accessible to the human ear. [191]

Rhythmic ambiguity in early Medieval music is only one of myriad examples where a sign can only be meaningful once its context is clarified. Early Medieval notational systems are not the most universal form of notation; but when we understand their unique context of signification, their expressivity shows us the ways in which musical notation does not always *have to be* a logically explainable system, being immune to contextual changes, in order to be expressive. This fact can bear close comparison to a more recent notational phenomenon – the reading of indeterminate notation.

[191] Marcel Pérès, ibid.

Indeterminacy in indeterminate notation



Ex. IV 2: from the Cardew Octet *(complete section)*

The above section from Cardew's *Octet '61* (Ex. IV/2) is for an indeterminate number of players and indeterminate ensemble. Each section can be performed as an independent piece. The only determinate aspects are that each sign should be understood as a musical event, and each performer may start anywhere in the piece (the last number links to the first) but must follow the sequence of the numbers. As for understanding how the signs should be translated into an acoustic phenomenon the composer notes that:

> the signs should be allowed to suggest something concrete; a sound, a technique. The traditional connotations of signs or parts of signs should provide sufficient context for a concrete interpretation of at least one sign by almost any musician. This done, his utterance of the one sign should provide sufficient context for the comprehension of neighbouring signs.[192]

[192] Cornelius Cardew, *Octet '61* for Jasper Johns, Hinrichsen Edition, London, 1962. All the citations on Cardew in the following discussion are quoted from the same source unless otherwise explained.

He then gives No. 22 as an example (Ex. IV/3):

Ex. IV 3: event No. 22 from Octet

> Two whats? An exploration of No. 21 may provide some answers. For example: No. 22 could consist of a second version of No. 21, or No. 21 itself played twice more. Or one could retain two notes of No. 21, or two anythings, or anticipate two notes or anythings of No. 23, the two *fs* perhaps.

The composer gives a few guidelines as to what each marking suggests, but he gives a blanket allowance that the musicians may interpret the signs on paper in any way they like. Thus it appears that the only guiding force is the sequence of numbers itself.

One can figure out the pitches relevant to each number and string them together relatively easily. The more challenging aspects of this notation are the timbral and rhythmic distribution of the signs. It is true that the composer has given more pitch indications than any other type of indications by the use of staves as part of most of the numbers. But the relatively small number of signs that can be taken for rhythmic and temporal structuring in this notation can become problematic in performance. In practice we realise that we are often better equipped to infer pitch structuring out of music and much less so in reference to temporal and timbral structures.

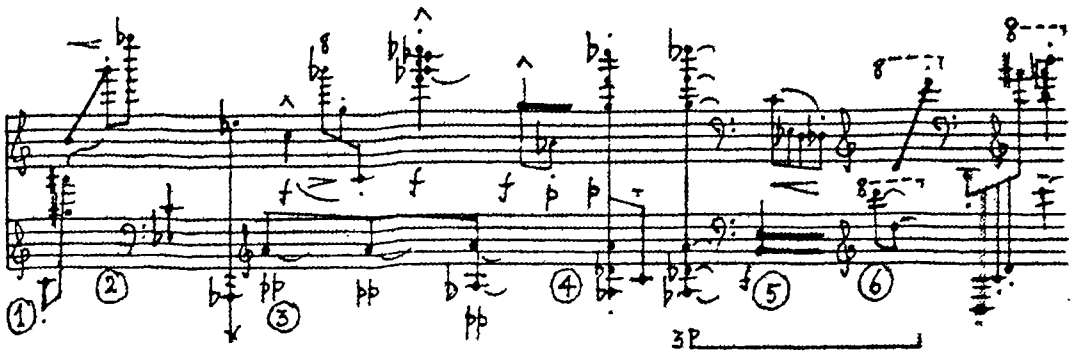
This sense of apprehension – as to what notational signs stand for – is similar to the one we experience when reading a book in a language we don't have a good grasp of. Conventional modern notation as we know it is so integrated into our psyche, like our first language, that we expect it to be largely self-explanatory within the vocabularies we use in our everyday life. In this sense modern graphic notations can be seen to have much in common with early notations – by virtue of not

conforming to the generative rules of conventional modern notation and thus making the presence of 'other' languages felt.[193]

Faced with a unique notation, how can we find a code of practice appropriate to the information given in the score? Despite the fact that Cardew wishes notation to be free from the restraints of past practice, the principal virtue of the existence of a score lies in the fact that it expresses something about the music, be it notes or a process of performance. Consequently, the score could be sufficient to allow a performance of the piece without resort to further explanation. Alternatively, as in this case, the score assumes the involvement of external interpretative criteria. We have seen the referential manners in which indeterminacy in the early notational systems can be given determinate quality in individual interpretations. If we were to draw parallels with this practice within new music, a few questions arise: are the indeterminate elements in modern notation referring to extra-musical elements? To what extent is indeterminate notation such as that of *Octet* really indeterminate?

It is therefore indicative of a certain approach that Cardew offered interpretative examples. He clearly intended that all realisations of the given signs must be drawn from the materials that make up these signs. Theoretically speaking, one can realise them in any manner one chooses as long as the realisation is a musical event, but Cardew's own example of how the signs can be read suggests another interesting example of Hermeneutic semiosis. Here is his own interpretation of the first six numbers:

[193] There are many different types of graphic notations and early notations, and they share generally being outside of the mainstream conventions. There is, however, at least one clear difference between early notations and the modern graphic ones: the latter often assume to varying degrees the knowledge of modern Western notation in the musicians who read them.



Ex. IV 4: Cardew's own interpretative example

[1] Seven taken literally as a configuration in musical space. Six Cs, one added to each of the first six signs

[2] Add E flats

[3] Three As. Five A flats. Three sustained notes *forte*: the others *piano* or *pianissimo*. Five-note cluster-type chord

[4] Two chords *piano* following the dot-dash rhythm of the Gs in 3

[5] Slide from E down towards B

[6] Six different registers for D (colour pitch). Seven described as in 1. One described as subsequent cluster. One C at given pitch – longer duration

In the example of event Number One, the composer takes the figure of 'seven' in the pictorial sense and realises it on the level of pitch figuration in the notated score. His 'musical space' means a two dimensional space produced in notation: one cannot relate 'seven' and the acoustic identity of this figuration directly – their resemblance is revealed only through the mediation of the score. He takes the note C as a transposable note: this requires an understanding that all the Cs available on the piano can be considered to have the same property and meaning – a thinking that has been prominently influential in Western musical composition over the centuries. It requires this understanding for us to recognise the six occurrences of this note over the next six Numbers.

His choice of interpretation shows a particular inclination: it seems that everything should be referred to the events within the practice of Western classical music. By saying that 'the signs should be allowed to suggest something concrete; a sound, a technique', he rules out other, less *concrete* (in his own words), interpretations. What does he mean by '*concrete*'? Take the example of 'seven': it can suggest completion and perfection in a biblical sense, and therefore one could

play Sunday church music; one could play a piece of music which one learned when one was seven; 'seven' could be understood as a heptagon shape amongst others. There are countless points outside music, where 'seven' can be referred to music. Even taking the configuration of 'seven' on the violin's fingerboard, which would result in a totally different sound to what he proposes for the piano. Are any of them not concrete?

The composer's suggestions for the first six Numbers above make clear what he means by '*concrete* interpretation': it is a practice that is referable to the existing, culturally acknowledged, practices of musical articulation. The composer's choice of distribution of the note Cs and 'six' is perhaps the most indicative in this respect. His realisation has at its root the interaction between analysis and composition. It incorporates analytical practices such as 'how a composer puts a piece together' and 'what is significant about the structural organisation of the piece'. Almost too obviously his choice shows his understanding of the value of repetition of a pitch-class, which typifies the knowledge of material organisation in classical music.

One may ask if it is necessary for the performer to understand these details in order to realise the piece. When he says 'the traditional *connotations* of signs or parts of signs should provide sufficient context for a concrete interpretation of at least one sign by almost any musician', he seems to suggest 'do whatever you like'. Yet he may well mean 'whatever you can find within the means of execution which various historical and stylistic compositional practices offer'. I would say one does not have to follow the example of Cardew and confine oneself to the existing practices of structural process. However, I acknowledge at the same time that the aesthetic value of the piece increases when one understands the way in which the composer casts his interpretative operation and follows his manner. One can clearly see that Cardew almost always refers individual signs to objects found in the Western compositional practice from the eighteenth and nineteenth centuries, or objects reached by its mediation. Furthermore, he also left the stamp of his knowledge of contemporary avant-garde compositional preferences, a stamp which marks the work as a piece of its time. His score renders a wealth of interpretative possibilities and reveals a unique expressive scheme when one looks at it from this point of view.

This becomes clear when we follow Cardew's lead in exploring 'traditional connotations' of his signs. When we take the varied compositional practices found between 1750 and the mid-1960s as the framework for the objects that can be inferred from these signs, we realise the diversity of expressions that can be attached to the same basic signs as the ones used in *Octet '61*. For example, an E flat can be interpreted in the manner of tonal music (as an E flat major chord or the flattened seventh of an F major triad), or in a mode parallel to visual arts as practised in post-war America (such as writing the words 'E flat' on the stave and pressing the keys that correspond to the blackened parts of the stave – a 'configuration of a sign in musical space'). An E flat alone can be interpreted in so many diverse ways. The same sign can be understood as different objects and events in different compositional practices, and the qualitative difference between the signified objects can be so distant that one doesn't observe any resemblance between them except the fact that they are both derived from the same sign.

The difference of the effects (signified objects) is a difference of signification process in each compositional practice. Cardew gives an opportunity for these different processes to be juxtaposed by choosing them randomly, and builds up a web of multi-directional cultural semiosis. One does not have to refer to extra-musical or personal experience which these signs invoke. The composer proves by his own example that a retrospection by the musician on his or her experience with the history of Western music provides a wealth of possible realisations. The idea of such wealth being confinable within a single piece has an aesthetic appeal. One could say this is the fascination which the indeterminacy of this piece provides.

Here there is a parallel with the Hermetic approach of medieval culture. Cardew's world is certainly not the World as the Universe where music, poetry, cosmology and theology can be taken as its manifestations. His is the world of the Western musical canon of the last two hundred years from which different stylistic and compositional practices are taken as its representatives. His indeterminacy operates *within* the discrepancies one finds between different practices regarding the use of musical signs. Cardew encourages us to choose these practices freely and randomly and builds up a patchwork of various practices in one composition. This provides a possibility that the listener who also knows the Western musical canon can also appreciate the semiotic complexity of the process. When diverse practices

detach themselves from their historical and stylistic context and become collected together in the new context of this piece, it produces a fabric full of traces of the meanings which these individual practices once had. The historiographical concentration which *Octet '61* is capable of embracing is a remarkable achievement.

Whilst the musical space within which musical experience takes place cannot be defined, as it varies for individual instances, the musical space produced in the score can be taken as a neutral space itself. *Octet '61* explores the possibilities of this dialogue between the permanent and ephemeral and presents an idiosyncratic dialogue between the graphic presentation and its sound. Cardew experiments with the graphic-spatial expression's power to provide a temporal-spatial expression in two distinct ways. He employs them frequently in his own example: the use of the figurative shape of a sign which can be translated into a figuration on the score – a practice that can have a vital role in the performance of his graphic score *Treatise*. Another is the use of the distance between signs on the page as a dividing agent between adjacent sound events. The performer requires a fairly good understanding of these important functions which the notational space represents, that the structural trace of the music is *visible* by this neutral space that is both graphic and temporal.

There remain questions about how fast *Octet '61* should be played and what the durational relationships should be between signs. One can reach a possible answer to both by examining the compositional practice that comes with the chosen manner of execution for each sign. Each compositional practice has its own way of coding music into signs, and each practice has its own rhetoric of what a particular sign means. Such rhetoric is particularly specific and varied when the sign (indication) refers to rhythm, tempo, dynamic or timbre, the temporal and timbral parameters of music. We have a level of tacit agreement about how a waltz should be played, what *allegro* means, what *dolce* means, how an *Hauptstimme* should be phrased, variable according to the dictates of the work's compositional and stylistic context. We need to find out what tacit agreement can be found behind the signs which make up the *Octet*.

When suggesting an interpretation for event Number One Cardew was aware of some principles that govern the perceptibility of his chosen material. For example, the distribution of the six repetitions of the note had to be fairly equidistant, if it was intended to be articulated as such. If the six notes were repeated very fast they would be articulated as an *arpeggio* or *tremolo* gesture; if the distance between the six

notes were irregular or subdivided into groups (such as in dotted pairs) it would appear as co-incidence (if ever noticeable) or articulate itself as repetitions of a smaller group. Thus the executive means for the repeated C become limited as the interpreter's willingness to articulate the repetition increases. In contrast, the spatial figuration of 'seven' needs to be quick otherwise the individual notes will render themselves as isolated events.

No interpretative restrictions would apply if the interpreter chose not to articulate his or her interpretation in a universal manner. But Cardew's own example shows that he *does* wish to articulate his interpretation in a way that can be explained and understood in terms of Western musical practices. Consequently, it can be suggested that his own interpretation of the piece obliges us to interpret along similar lines if the performer intends to replicate the imaginative force that created the work *Octet '61.*

Very little of Cardew's own interpretation of *Octet '61* could hold its comparative universal expressivity if we did not have the precedents that spell out how these events and manners of execution should be appropriated in their own context. When we understand the principles underlying his own interpretation of *Octet '61* we discover that the etymology of the indeterminate signs used points to the areas in which interpretative materials can be found, and the chosen interpretative materials dictate the temporal structure. In the end the interpretative freedom is small – as far as the material is concerned – if one follows the dictates of the semiotic signs in the score in a 'concrete' manner (as Cardew suggested). But such restriction is observed only on the surface level of the work's expressive potential as the dictates of the signs point most clearly to the poetic wealth of available resources.[194]

This is an ironic conclusion considering that Cardew wanted to liberate the musicians from the confines of traditional semiotic operation – how this or that sign should be read and interpreted. As he says:

> If the most important function of a composer were the stimulation of an interpreter this piece would be a composition. The stimulation of the interpreter is a facet of composition that has

[194] The present discussion is focused on the framework for interpretation of the given signs. There remains still a tremendously large variety in the ways in which these interpreted signs are structured in relation to each other. The performance of this work never fails to surprise the listener in its spontaneous yet inevitable power to create an overall shape as a piece of music.

> been disastrously neglected. Disastrously under-stimulated performances of contemporary music are the result (for here, past glories cannot act as stimuli). When performed, the piece may be judged as a musical experience (sounds brought together by human agency) and thrown down the drain. No one is to blame. My reputation is free to suffer. This piece is not gilt-edged.

However, in attempting to liberate the performer, he made it a prerequisite that we share his knowledge of Western musical practices of composition and performance. Indeterminacy becomes indeterminacy only when the determined quantities become known. In *Octet '61* Cardew's own interpretative example suggests that the determined quantities in this case are the textbook of Western classical legacy in 1960s, which was also the basis of Cardew's musical thought as a composer. The 'stimulation' is an awareness of the expressive potential tradition still has. But what stimulation and freedom means to the interpreter changes, and has certainly changed since 1960s. In initiating the then contemporary kind of awareness, the author is lurking behind the notation's indeterminacy.

This would also suggest that the complete liberation of the performer is only possible when the performer is the author. Despite such an incongruity, one cannot help sympathising with Cardew and thinking that he would have wished the result that responds to Barthes' famous dictum 'the birth of the reader must be at the cost of the death of the Author'.[195] The unforeseeable nature of indeterminacy itself is to blame for the failure of this attempted liberation.

Indeterminacy in action notation

> Music of the 20th century has been marked by an ominous rift in the relationship between composers and performers. This has arisen from the dilemma as to whether music is to be notated as it should sound (the result of a performance), or whether one should notate how to produce the desired result (as action notation). [196]

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[195] Roland Barthes, 'The Death of the Author', *Image, Music, Text*, translated by Stephen Heath, Fontana Press, London, 1977, p. 148.

[196] Peter Böttinger, 'The unpredictable beauty of predictable collapse', in the composer brochure Klaus K. Hübler, Breitkopf & Härtel, Wiesbaden, 1987, p. 8.

In classifying these two types of notation - 'resultant notation' and 'action notation', Böttinger highlights the problems and poetics which these two types of notation have introduced as one of the major developments of twentieth century music.[197]

Over the centuries composers employed action notation in conjunction with resultant notation. As Böttinger points out, Italian Renaissance organ music is perhaps the first example of the employment of action notation in its registration indications. The organ stops are part of the construction of the instrument, and their use adds another layer of expression to the music. This fact made it unnecessary for its notation to be anything more than just a technical set of indications.

Indications that can be considered as action notation on the violin are numerous. Examples that come immediately to mind are: application of a mute, fingering for harmonics, bowing instructions (as discussed in the previous Chapter), independent actions of the left/right hand (as opposed to the normal practice in which both hands either synchronise or co-ordinate but are never independent of each other). One can speculate why these indications came to exist originally. The mute was introduced in the first half of the seventeenth century as part of the development of idiomatic technique on the violin.[198] By putting a small piece of wood, lead, tin, or brass material the instrument produces a different, 'muffled' tone which affects the entire sound of the violin. This extra layer of tone colour cannot be found without this additional device being attached on the instrument, and therefore it is indicated like the organ stops in notation.

Bowing signs are also technical indications but of a different nature.[199] These movements are not devices; they are techniques that constitute part of the music one

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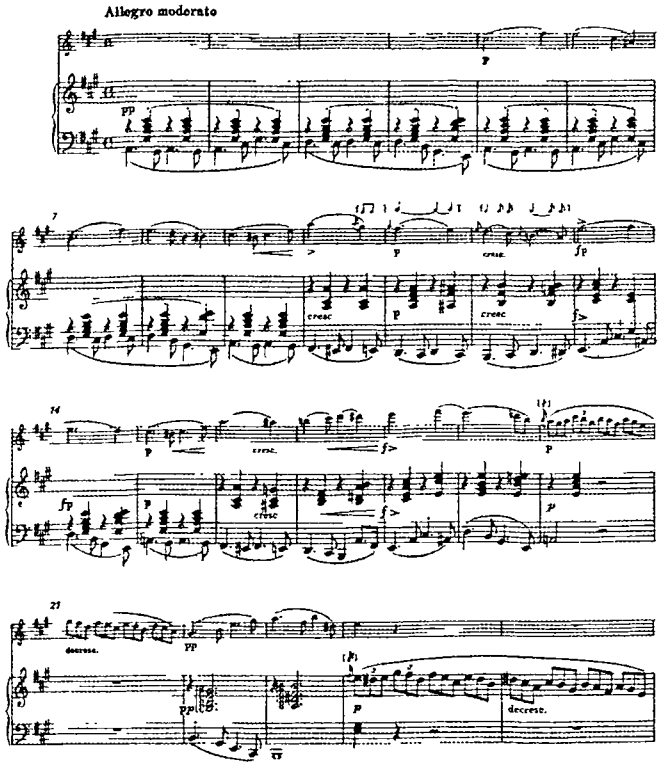
[197] In discussing the notations of non-European musics in 1958, Charles Seeger described the critical difference between prescriptive notation (which includes both action and resultant notations discussed here) and descriptive notation, and suggests potential co-operations between the two in order to facilitate a better means of music-writing. It may be useful here to point out that Seeger's descriptive notation resembles Böttinger's resultant notation so far as the representation of what is believed to be the *overall character* of the music in question. The difference between them is that Böttinger's resultant notation is a representation of a group of conceptualized musical images as a work whilst Seeger's descriptive notation is that of a musical performance as a work. In Seeger's view, Böttinger's resultant notation is a more symbolically prescriptive notation and the action notation a less symbolic, but more materialistically orientated prescriptive notation. Thus the problems and poetics which resultant and action notations have introduced are primarily matters of articulation rather than those of ontology. Charles Seeger, 'Prescriptive and Descriptive Music-Writing', op. cit.

[198] David Boyden, *The History of Violin Playing from its Origins to 1761*, Oxford University Press, Oxford, 1961, pp. 125-131.

[199] These signs include simple indications such as down and up bows, bowing slurs (as opposed to phrasing slurs), as well as more complex ones such as movements on the horizontal and vertical parameters.

plays. However, they are parameters which standard contemporary notation has never accommodated as anything more than secondary attachments (rather than integral components). The lack of resultant notation for bowing movements is a historical default: it was only from the nineteenth century onwards that such technical clarification became necessary. Before that, bowing movements were determined by the phrasing and by standardised rules such as *Affektenlehre.*

One may ask if the use of slur markings may be distinct from that of bowing indications. But very few composers have used slurs as phrasing indication on the violin. The most frequent forms of slurs we encounter are like this:



Ex. IV 5: Schubert Duo in A first movement[200]

Are the slurs here referring to bowing or phrasing? It is perfectly possible for the violin to follow the markings (thus taking them as bowing indications), and for the piano to mark the beginning and end of each slur in various ways such as producing a gap or a dynamic shift between the end of one slur and the beginning of the next. The argument is quite strong for both instruments: the violin bow changes more frequently (two strokes per bar) when the amplitude becomes louder. The piano

[200] Franz Schubert, Sonata in A for violin and piano Op. post. 162 D 574, Bärenreiter, Kassel, 1970, p. 3.

moves from two-bar slurring to one slur to a bar after bar 8, which coincides with the increase in the dramatic movement of the passage.

Despite all the reasoning above, most of us will see these slurs as a general statement that the piece should have a smooth *legato* articulation. Slur markings can mean *legato* within one slur as well as *legato* between the slurs, and for the bowed instrumentalists they can be mere bowing instructions (such as the slur over a *ricochet* marking).[201] There is very little that suggests overall *legato* (carried over many slurs) in the Schubert example except the impression these slurs produce on the page by drawing many horizontal lines. But our understanding comes from repeated practice of playing these slurs (found more frequently in orchestral parts) as a general expression of smooth delivery – a code of practice that runs from Beethoven to Brahms, Sibelius, Mahler, and later composers who follow the practice of the canon of Western classical music.

[201] See Robert Donnington, *The Interpretation of Early Music*, op. cit., pp. 475-476.

dynamic: if we start the piece with a down-bow, the *fp* in bar 13 would be played with an up-bow; if we start the piece with an up-bow the bar13 would be a down-bow but then we would end up at bar 18 with an up-bow. One may therefore find it necessary to change the bowing, not because of the convenience but because of the technical limitation most of the violinists are likely to feel about the weight-manoeuvring in the delivery of the bow.

The ambiguity of these indications can be explained by the fact that bowing technique was evolving fast from 1750 and that the bow itself had been newly re-developed in its construction by the time of this composition. The introduction of super-*legato* technique has expanded expressive means beyond the tradition of stroke-articulation.[204] Hence composers had the opportunity of notating an ideal *legato*-articulation, which takes advantage of both types of slur indication. As an indication, they are conceptual signs beyond questions of practicality – the practical decision making is imposed upon musicians who use and read these markings.

It is outside the scope of the present discussion to speculate further whether the slur/legato indications should be more rigorously differentiated and notated, or should acquire a different notational system altogether. Suffice it to say that their being technical indications or goal-orientated ones depends on their historical practices, more often than on the logical links one can observe between bowing technique and notation. The discretion the performer uses has a greater responsibility.

The left-hand signs – such as fingering and harmonics – were traditionally written to help performers who may not instantly know how to finger the written resultant notes. As discussed in the previous Chapter, these signs become pertinent to music when the differences which fingerings make become an integral part of the musical expression. Fingering signs are very useful when the resultant sounds are either difficult to notate or impossible to specify. There is less ambiguity in what we understand about left-hand indications. For example, most musicians know whether a given harmonic is a resultant note or a technical indication in the case like this:

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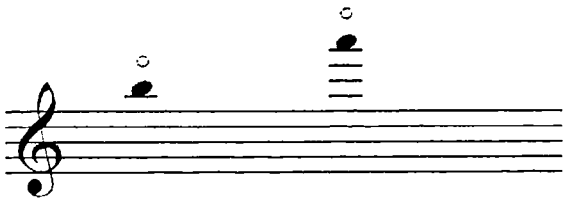
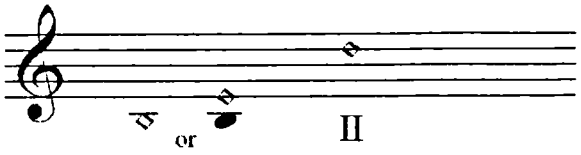
[204] The treatise by Leopold Mozart pre-figures this development by introducing amplitude control within the bow, but the most significant contribution was made by the Franco-Belgian school in the first half of the nineteenth century when they introduced a greater use of the right-hand fingers where the weight given to the bow-stick can be transferred from one finger to another.



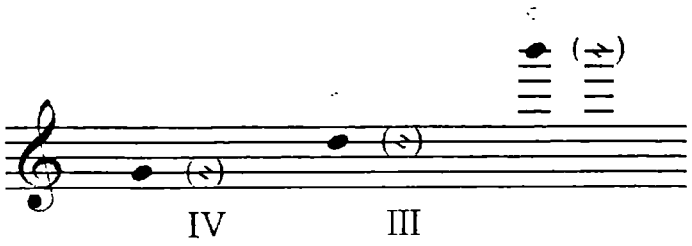
Ex. IV 8: the notation of resultant natural harmonics

It can be written like this as a technical indication:



Ex. IV 9: the technical notation of the same harmonics

There are some cases where the resultant note is the same as the indicating one:



Ex. IV 10: both technical and resultant notation of some harmonics

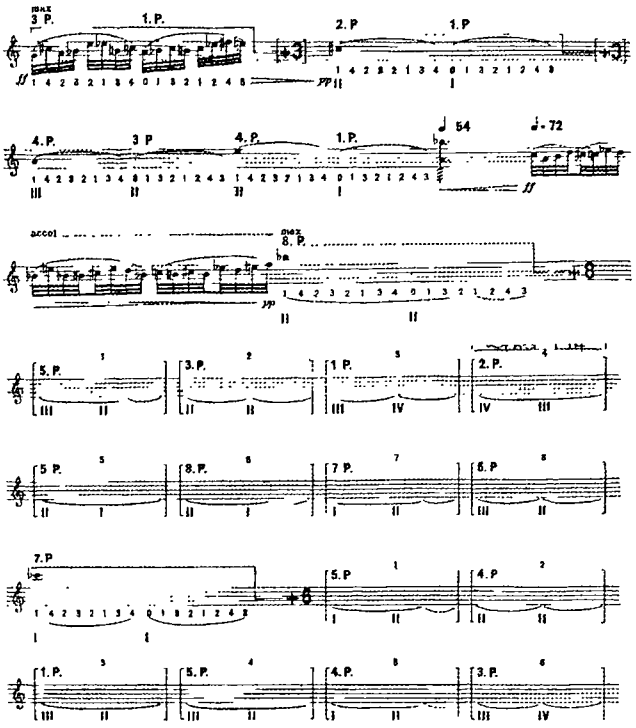
The first note of the last example (note G) can be interpreted as a resultant pitch G with a technical indication as to its timbral effect (harmonic).

Other action notation signs for the left-hand are: fingering, on/off indication for vibrato, and percussive effects that can be produced by the left-hand fingers. But the majority of left-hand signs are concerned with pitch production (as opposed to

timbre production): perhaps the closeness of the link between left-hand signs and pitch configuration explains why indications for the left-hand are less ambiguous than those for bowing.

Since the beginning of the eighteenth century the majority of compositions written for the violin could not have avoided using these two types of notations for many aspects of performance – partly because of convenience, and partly from habitual competence gained upon repeated practice. The practice of simultaneous use of these notational systems has consolidated itself to the extent that most trained musicians can use them intuitively in every day music making.

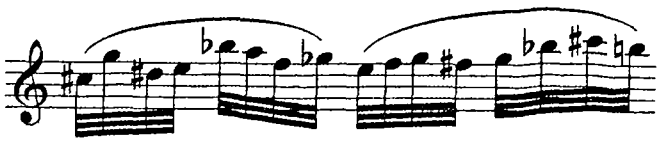
Despite their consolidated use in our notational practice, it is still seldom pointed out that different action indications can be combined to produce a specific effect that is unexpected and certainly cannot be expressed in any other notation. (For practical examples of this see the Barrett as well as the Cage discussed in Chapter Three.) Such instances remind us of the fact that the use of action notation has tended towards technical convenience of communication rather than its aesthetic significance – and consequently our general musical discourse has not yet fully experienced the poetic/aesthetic power this new notational practice is capable of exercising. However, there are compositions whose action notation can be also notated using resultant notation to the seemingly same effect, but where the composer has chosen to use action notation. This would serve as a case with which to examine the aesthetic aspects – rather than the technical – of action notation. The following passage from Luciano Berio's *Sequenza VIII* for solo violin is a fine example of this.



Ex. IV 11: Berio Sequenza VIII page 8 line 6 – page 9 line 4[205]

The numbers under the notes indicate fingering; the Roman numerals under the fingering numbers refer to the strings (e.g. I on the E string, II on the A string); the '3.P.' indicates that the fingerings should be executed in third position, '1.P.' first position; '+ 3' and '+ 8' in a larger font on the stave stand for the number of times the foregoing passage (grouped by a straight line above – four quavers' length in all of them here) should be repeated further. When the notes are not written out – for example the second half of the first line in the above – the intervallic relationships of the preceding pattern (the first four quavers at the beginning of the same line) are to be maintained throughout. So the resulting notes – using resultant notation – of this second half are:

[205] Cited from Luciano Berio, *Sequenza VIII* for violin, Universal Edition, Wien, 1977.



Ex. IV 12: resultant notation of the second half of page 8 line 6

We may be more accustomed to play from this type of notation. However, one can clearly see that the previous type of notation (action notation) is more compact and crystallised in expressing the underlying logic of the pitch sequence in this passage. When one extends this hypothesis to broader use, it is also possible that one could write, for example, a piece with a simple ABA sonata form using this notational scheme – writing the B section in the tonic key and say at the beginning of that section that everything is to be transposed to the fifth above (as an extension of the key signature). This would make its overall tonal structure more explicit and any harmonic particulars would be much more clearly discernible on the score.

So why not? There are at least two reasons: one is that by tradition conventional notation employs resultant notation for all aspects of composition concerning pitch, and is not only about individual notes but also about harmony which is goal orientated in its notation.[206] Another reason is that action notation is a theoretically based practice –its validity relies upon the presence of its theoretical practice. Charles Rosen points out that the term "sonata form" was an invention of a musicologist who devoted his life to the deification of Beethoven. The model was deduced from the forms that have common harmonic structural features between them; Rosen demonstrates that 'sonata is less a form or set of forms than a way of conceiving and dramatizing the articulation of forms'.[207] If a composer tries to express a sonata form using transposition for the B section, the content to be articulated must be made clear first. Historically speaking, this was never the case: practice always stood before theory, and practice always leads the development of compositional/theoretical practice.

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[206] One can 'transcribe' compositions into numbers by describing the fingering (as Berio does) or the pitch class (with an additional information about the register). The pitch class transcription derives its concept from serialism and has become an analytical technique employed by many musicologists in the studies of diverse types of music. Musicians who are experienced in compositional and analytical technique can read music written in pitch class sets without re-writing it in notes. This suggests that, practical though conventional notation may be, other pitch notations are neither less expressive nor inferior in transcribing some types of music.

[207] Charles Rosen, *Sonata Forms*, revised edition, Norton, New York, 1988, p. 97.

Action notation thus requires *a priori* an establishment of its parameters. In the above example by Berio, the components of such practice are:

- The intervallic relationship between notes remains the same wherever the hand position is – this implies that adjusting the actual distance between fingers will be necessary [208]

but

- The relationship between two adjacent strings remains the interval of a perfect fifth.

In other words, the execution of the passage is impossible without the knowledge of transposition in equal temperament, and an understanding of how the violin is tuned. These two components form the default basis upon which notes are produced.[209] One may argue that there is no point in making a distinction between resultant notation and action notation if the result is the same. Some musicians may suggest that the same thing can be notated in different ways, the choice of which depends on purely practical convenience.[210]

Indeed the difference between the two notations in this particular passage does not relate to an aesthetic difference in performance. However, there *is* a difference the work produces in the course of performance-making, on the psychological state of the performer when reading its notation. This could *become* an aesthetic difference in performance as a result, but not inevitably. In a written out score (resultant notation) the performer does not have to be aware of the fact that the entire passage is a repeat of a 16 note sequence based on the fingering gesture. In Berio's schematised notation the performer is aware of the figuration but not necessarily of the resulting notes. Provided that the performer achieves a level of intonational accuracy in both cases, there is no ground to believe that there is a significant difference in the performance of this very fast and even figuration. The only difference is the degree of awareness the performer has of the figuration with

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[208] As the pitch and hand-position goes higher the left-hand moves nearer to the bridge and the distances between fingers need to grow smaller than the corresponding intervals at the lower pitch and lower hand-positions, because the shorter the resonating length of the string, the smaller the size of the intervallic fraction becomes.

[209] The default basis varies according to the internal structure of music: the basis in reading numerised and serially organised pitch material is that all the pitches (and all the timbres in some cases) at diverse tessitura can be reduced to 12 pitch classes; all the pitches must uniformly fall into the 12 equal-tempered ones.

[210] Roger Marsh raises this issue about Brian Ferneyhough's notation in his article 'Heroic Motives', *The Musical Times*, op. cit. See my discussion on Marsh's claim in Chapter Three, Section Four.

which the passage is composed. Furthermore, even this procedural difference can become obsolete when the performer memorises it – as memorisation of a passage of this complexity and speed largely depends on habitual memory upon repeated exercises rather than on intellectual thinking (that runs parallel while performing) operated by the generative rules in the notation.[211]

One can attribute the particular character of Berio's action notation to the way he dramatises the articulation of the music – as 'sonata' structure does to the articulation of sonata forms. It is possible to prioritise the schematic pattern above the passage of notes: here bowing articulation comes to play a decisive role. The bowing pattern remains the same for a large part of the passage and each four-quaver unit also completes a down-up circulation of the bowing movement. In the first unit in the above example, the performer can emphasise the repetition of the four-quaver pattern by phrasing each pattern in a uniform way such as adding a slight accent at the beginning of each down-bow (note G). Such articulation needs to be discreet if one wants to avoid any mannerism: the following line in the score (starting with the note A) should be played with a seamless bow delivery – doing so will bring out the non-repetitive melodic sequence that is new in this line in contrast to the beginning of the passage in the preceding line. Such an interpretation can be justified by the notation. Indeed, if the notation has any value to the performer beyond communicating the sonic information, it is this power of supplementing musical articulation by the graphic form of expression.

But the subtlest of all the features this passage has is the sense of automation it creates in the music. The piece is predominantly lyrical; there are two *'scherzi'* including this passage, which are contrasted to the rest. The feeling of an unstoppable cascade of fast notes, of getting out of control and being driven by the thing itself, is best represented by his notation. After all the question of whether or not it should be action notation is not the central issue here. His notation as a visual

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[211] Such habitual memory may include visual memory – in the Berio example two notations offer different visual images and can influence the structure of the memory itself in different ways: the image of the action notation score articulates the grammar (the underlying structure) of the passage and thus can help to stimulate the pattern in memory. Whereas the image of the resultant notation score relates more directly to the physical sound of the music. Musical memory can be seen to operate in the similar manner as that of language. Steven Pinker discusses two modes of learning and using language: language is generated by a combination of memory and generative rules, a process that applies equally to other areas of cognition. For example, when a three-year-old tells us they '*bringed* you a cup of tea' they may be technically wrong, but they are performing a mental task of almost bewildering sophistication. Steven Pinker, *Words and Rules: The Ingredients of Language*, Weidenfeld & Nicolson, New York, 1999. The topic was explored in a public talk held at the National Geographic Society, London, 9th November 1999, which the author of this thesis attended.

form most appropriately corresponds to what the music sounds like, thus he achieves an aesthetic integrity by representing the same music in different forms (notation and performance).

Summarising the above, indeterminacy in action notation can take two forms.

- Only the method of execution is determined (with the resultant notes/sounds being undetermined)
- A determined method of execution produces a determined result but the aesthetic significance of the determined result can be increased by the characteristics of the method and form of notation

It follows that indeterminacy of action notation is not just about the parameters undetermined in notation. Indeterminacy is a subject embedded in the entire musical discourse – from composition, notation, interpretation, performance and reception. Indeterminacy of action notation is the medium which broadens the aesthetic horizon from the confinement of mere goal orientation and makes music dynamic and spontaneous.

Indeterminacy in general has been largely discussed in conjunction with notational practice, with standard notation and indeterminate notation being situated at opposite poles. Action notation is often thought of as a third way, a form of less determined notation than the standard one but providing a more rigorous control over the method of execution. Action notation can be seen as standing opposite to notation when we examine the way in which these notations determine what Böttinger calls 'poetics' – the individual form of expression. The resulting music of action notation may be as random as that of indeterminate notation. Indeterminate notation and action notation share the form of expression in which the unique circumstances of an individual performance affect to varying degrees the outcome of the structure their notation indicates. But when action notation does not have to be written in that way (as in the Berio example above), indeterminacy takes place in what can be called 'interpreter's freedom' – the realm of performance practice. The size of freedom in the Berio score may seem smaller when comparing action notation with 'undetermined result', as the resultant music corresponds *quantitatively* with the material in the notation. But the space of freedom is subverted to the realm of aesthetics: an area that may be small in size, but denser and more dynamic in its potential expressiveness.

Indeterminacy in standard notation

What interpreters' freedom can be found in standard notation? One can find an answer in our everyday practice: the performer has all the freedom to produce an individual form he or she likes out of the given information. But listeners recognise different performances of Bach's Chaconne as performances of the same piece. What exactly is the sameness and difference we recognise in these performances? What is the nature of 'given information'?

We recognise a piece by its particular characteristics –its series of intervals, harmonic orientation, melodic and rhythmic character.[212] In computing acoustic music mentally we preserve many prominent features as important information contained in the original whilst losing specific details. When John Sloboda assesses how Mozart memorised Allegri's *Miserere* in two hearings, he observes an in-built mechanism by which the music communicated with the highly perceptive young musician. He suggests that:

> There are several strategies that Mozart could have used to memorize the crucial section. One would be to focus his attention on a different vocal part on each of the hearings. I suspect, however, that a priority would have been the exact replication of the celebrated soprano line together with the correct harmony. . . . With the primary melodic line and some of the more salient inner parts fixed, it is quite likely that Mozart could have used his stylistic knowledge to 'fill in' what he did not hear for certain. Furthermore, he would probably have had that 'instant' recognition of chords and intervals . . . Thus he would know that he had heard, say, a dominant seventh chord, without necessarily hearing out the individual notes. Yet his knowledge of the contents of a dominant seventh would allow him to infer the notes 'in the mind's ear'. After a first hearing, he would have identified

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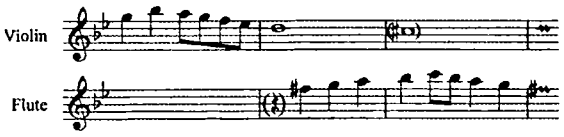
[212] One can observe in varied instances how tune-orientated our musical memory is. For example, there is a mobile phone whose ringing tune is the beginning of Mozart's Symphony No. 40 in G minor. But towards the cadence the tune does not follow that of the violins (who were playing the melody up till then) but switches to following the tune of the flutes which is the more melodic line at this point:



This suggests an interesting phenomenon that most of the listeners do not at least find it strange that the melody is interrupted by another instrumental line. Rather they may identify the tune of this Symphony to be a hybrid of different instrumental lines that make up what is perceived as memorable - the tunefulness.

> troublesome sections which needed more attention on a subsequent hearing, because they did not contain instantly recognizable chords or patterns.[213]

The particular strategy to which Sloboda suggests Mozart took recourse is to follow the rules of the idiosyncratic language involved in Allegri's composition – such as harmonic and structural traits – that were current at his time. One can notice that what Mozart recognised and notated is the essential skeleton of the music and how his intuition and skills are combined in utilising notation in order to preserve the expression most economically. As for the manner in which the music was written down, Mozart's short-hand couldn't have been too far from the long-hand version – a fact that can be observed in many of his and his contemporaries' numerous sketches of their composition. Such sketching of the essentials happens to parallel what notation is and does best in conveying the properties of the music. This suggests that both composition and notation follow the same purpose and order of expression in Western musical discourse – and Mozart was good enough to know both implicit and explicit aspects of this language well in writing out Allegri's composition. He knew how music communicates.

This particular accordance between different stations within a musical discourse (composition, cognition, memorisation, notation etc.) can be found prominently in the music of the eighteenth and nineteenth centuries. Their unanimity of articulation is such that what is notated is what can be preserved: first and foremost, a group of specific aspects of music.[214] At the same time this suggests that all the other parameters play secondary roles in the recognition of a piece of music.[215] What Mozart recognised are properties that don't change in resultant representations, properties that make their notation a goal-orientated quality.

We have seen that an understanding of the language of a particular style of composition and its operation can be helpful in memorising its music. But is the knowledge helpful enough for memorising it – and for performing it?

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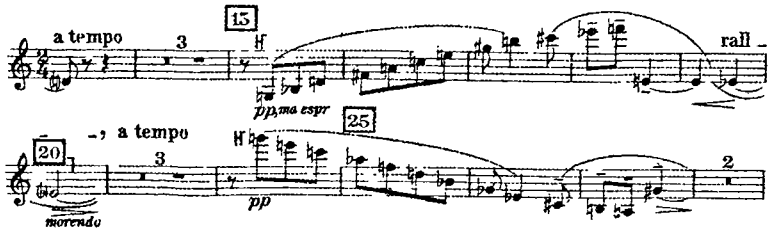
[213] John A. Sloboda, *The Musical Mind*, Clarendon Press, Oxford, 1985, p. 193.

[214] Because of the particular mode of orientation which standard notation shares with other operations (such as memorization and cognition) in the traditional Western music, standard notation can be said to be the most natural form of notation for this repertoire – rather than action notation would be, for instance.

[215] Sloboda observes that music notation as a cultural force 'selects certain aspects of sound for preservation, and, in doing so, both embodies current theory and also tends to restrict the future development of music in certain ways.' Ibid., p. 242.

Here the secondary parameters of contextuality come to play a role. Idiosyncratic language and its notation is only a means to an end: the end being many acoustic representations, which rely for their existence on the transient nature of contextuality. But what can change in varied representations is not always merely the questions of context, such as the performance occasion, instrumentation, or individual performers. The language itself can be ambiguous and context can play a substantial role in the poetics of the music, to the extent that variation can be observed at levels of musical cognition. Berg's Violin Concerto offers many examples of this.



Ex IV 13: Berg Violin Concerto – first movement[216]

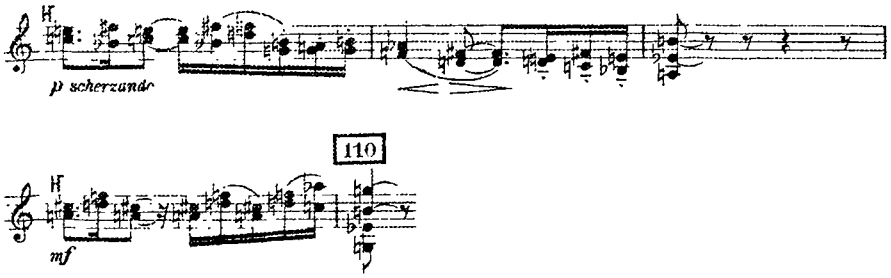
The above passage is a well-known instance of a tone-row being an expressive melodic line. The first ascending line delineates the row and the following descending line is its mirror image – the inverted row starting on the same degree (G). Before acknowledging the effect of this localised mirror form of the series, our perception recognises the rising and falling contour in which the prime form of the series and its inversion are enclosed. Here the two expressive modes – one the melodic rise-and-fall contour and the other the mirror form – set up their individual manners of expression but coincide in their forms of articulation.

How can these two modes be *successfully* expressed by the performer? Their overlapping articulation can be enhanced by a *crescendo* in the rising figure and a *diminuendo* in the falling figure. This dynamic change is applied first of all in order to compensate for the default: if the same bowing pressure and speed was applied throughout, the amplitude would become softer as the pitch moved higher. An increase in the bowing parameters would help maintain an even amplitude throughout thus allowing every note to be heard equally clearly. The *crescendo* and

[216] Alban Berg, Violin Concerto (1935), Universal Edition, Wien, 1938, p. 1 (violin part).

diminuendo would also change the timbre of the notes in the higher tessitura and increase the dramatic power of the passage. Furthermore the dynamic gradation increases the sense of a phrase.

This is a rare example in the Concerto where what the notation says neatly overlaps with what both the expressive grammar and style demand. However, the piece soon delves into a much more complex web of poetics and Berg juxtaposes this grammar and style in striking contrast:



Ex. IV 14: Berg Violin Concerto – first movement[217]

Notes form harmonic blocks (mostly consisting of two double stops – totalling four notes) and the passage contains a clear shifting of harmonic colours within the violin part alone. However, the overwhelming character of the passage is found in its exchange of the material with the wind instruments and in the underlying *pizzicato* triplets on the lower strings. The strength of this stylistic scheme almost makes one think that the notes are wrong: one hears the upper line of the double stops to be the melody. Achieving an equal emphasis on each pitch is thus difficult even at this local level.[218] Besides, any articulation aiming at bringing out the waltz quality would compromise the harmonic (syntactical) scheme. This type of ambiguity – as to the hierarchy of the expressive system – culminates in the introduction of the chorale later in the piece. Many musicians have noted this dichotomy inherent in Berg's composition, but perhaps most notably Theodor Adorno and Pierre Boulez. Adorno analyses the situation thus:

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[217] Ibid., p. 4 (violin part).

[218] Musicologists have suggested various tonal key centres for the sections including this one: Douglas Jarman suggests this section to be in D minor – in relation to the overview of the first movement as in G minor. See the general discussion about the tonality issues (including the Harman quotation) in Anthony Pople, *Berg: Violin Concerto*, Cambridge University Press, Cambridge, 1991, p. 65-66.

> The Bergian artwork seeks to reconcile two plainly contradictory things: to dissolve itself and yet to remain its own master. [In the Violin Concerto] everything is transitory, and yet everything must immediately show itself for what it is. The entire abundant tradition of music, from Viennese classicism to Schoenberg, finds itself in company with a compositional spirit that not only leaves no style untouched, as if it were self-possessed and isolated, but fundamentally opposes each one, treats all as nothing.[219]

Whilst Boulez observes that by combining varied forms that were very much established with a sense of development, Berg

> ... charged them with so much ambiguity that they take on a totally different meaning and virtually cease to exist. This evolution accomplished by Berg can only be seen as part of a continual quest for maximum effectiveness in these forms, which is no sooner found than there is only one desire – to progressively break up and destroy them, or to so overload them with emotional and formal additions that they collapse under all the extra weight.[220]

Boulez considers the case in the Violin Concerto to be a 'dramatic gesture' rather than a 'profound one'. He points our that there 'is a sort of nostalgia for a bygone world' in the Concerto which prompts him to suggest as a composer:

> if one is to preserve certain aspects of the past and to integrate them into our present-day thought, it must be done in the most abstract terms.[221]

Whilst not presenting such level of abstract clarity Berg produced the level of expressive ambiguity that is unique to this work. Anthony Pople compares Boulez' observation with Adorno's in regard to the effect of this ambiguity:

> If, as Boulez suggests, the treatment of the chorale in the concerto shows Berg merely cherishing the past, without in this instance simultaneously destroying it, then in Adorno's terms this might be seen as a lack of opposition to the style concerned – an unwillingness to treat it as nothing.[222]

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[219] From Theodor W. Adorno, 'Alban Berg: Violinkonzert' in *Der getreue Korrepetitor: Lehrschriften zur musikalischen Praxis*, Frankfurt, Fischer, 1963, pp. 187-216 (the quotation derives from pp. 188-200); cited in Anthony Pople, *Berg: Violin Concerto*, op. cit., p. 99.

[220] Pierre Boulez, *Conversations with Célestin Deliège*, Eulenburg, London, 1976, p. 21.

[221] Ibid., p. 155

[222] Anthony Pople, *Berg: Violin Concerto*, op. cit., p. 100.

This expressive ambiguity can be metaphysically understood in various ways. However, these comments are on the *state* of the composition. How can the metaphysical state of Adorno's interpretation be articulated in performance?

Adorno's view suggests that the full articulation of the expressive potential of the composition cannot be expressed in any single performance – the work's expressive power is best understood when one has a broad experience of it. It follows that what is common between these diverse performances is the set of very basic features – the notes and their sequence, in many cases divorced from what they are supposed to express due to the weakening of their grammatical functions.

The Berg is a good example where the dextrous handling of conceptual implications can be richly demonstrable. At the same time, it points out that what we see in notation – the explicit – is not necessarily directly connected with the poetics within the piece: notation is sometimes merely the surface of the music. Without the indeterminacy of the *method* of dramatic articulation, resultant notation stops being in any way significant. When the composer – like Berg himself did – intertwines multiplicity at the core of the composition, the worst offence a performance can commit is to take notation at face value. It follows that the much debated 'fidelity to the score' must be directed towards understanding the indeterminacy within the score.

Subjective indeterminacy and opportunistic reading

It is widely understood that when we play music we never really 'count' the beats as the notation describes. We may feel the pulse of the music, but musical pulse differs from musical beat: the former is subjective and open to modifications (such as *rubato*) whereas the latter is a fixed measurement. If the room acoustic is resonant, the music will alter the proportional relationship between a phrase length and the silence that follows it. Earlier notational systems embrace this subjective practice of creating rhythm as the only way of describing and *preserving* what Pérès calls 'organic rhythm',[223] whose characterisation depends entirely on the contextualised sense of time and pulse rather than pre-determined rhythmic values relative to each other.

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[223] Marcel Pérès, CD sleeve notes for Ensemble Organum, *Chant Cistercien*, op. cit.

In this way we practice our indeterminacy almost without knowing it, when concerned with a sensuous appropriation. We have seen that such appropriation is at the core of creativity in interpreting and performing Medieval music and indeterminate music such as Cardew's. One may call this interpretative method 'opportunistic reading', an interpretative practice that is found in every music to varying degrees.

The much debated practice of 'authenticity', too, has shown us the unavoidable existence of indeterminacy created by the historicity of the music, as Richard Taruskin has famously pointed out in his comments on the wishfulness of the authenticity movement at the beginning of his crusade:

> What we had been accustomed to regard as historically authentic performances, I began to see, represented neither any determinable historical prototype nor any coherent revival of practices coeval with the repertories they addressed. Rather, they embodied a whole wish list of modern(ist) values, validated in the academy and the marketplace alike by an eclectic, opportunistic reading of historical evidence.[224]

Opportunistic reading can be seen as a particular form of exercising indeterminacy embodied in the performance practice of music which is perceived as a historical object. Here the framework for indeterminacy originates from the passing of time and resulting differences: in short, it derives from the historicity of the music.[225] Music's historicity differs from its historiography, through the involvement of human perception: that historicity concerns primarily what people consider as historic, rather than fragments of the past in question (regardless of whether they have any *significance* or not). Whilst historiographical understanding of a musical work is largely objective, understanding of its historicity is distinctly subjective.

Despite the inevitable involvement of the historistic/opportunistic reading of historical evidence, musicology and performance practice have tended towards a factual and disinterested approach. Indeed, historiographical facts weigh heavily against theoretical, aesthetic, or metaphysical arguments in the musicology of

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[224] Richard Taruskin, *Text and Act*, Oxford University Press, New York, 1995, p. 5.

[225] Keith Jenkins argues that history is composed of epistemology, methodology and ideology, and 'epistemology show we can never really know the past; that the gap between the past and history (historiography) is an ontological one, that is, is in the very nature of things such that no amount of epistemological effort can bridge it.' Keith Jenkins, *Re-thinking History*, Routledge, London, 1991, p. 19.

'authentic' performance practice that has grown into a new tradition.[226] Peter Kivy makes a distinction between 'sonic authenticity' created by historical facts, and the 'sensible authenticity' created by empirical senses, and explains the former's dialectical superiority. He observes that sonic authenticity is not always perceivable as sensible authenticity nor vice versa, and sonic authenticity requires the listener to observe properties that are historically informed. He argues that sonic authenticity asks for a universal understanding of these historically embedded properties from the listener: 'in order to perceive the work the listener must be situated in a particular place in that history'. On the other hand, sensible authenticity operates through the mediation of the interpreter – rather than that of historical knowledge. Sensible authenticity can be perceived as authentic only when the interpreter's subjective approximation is understood by the listener.

The dialectical superiority of sonic authenticity over sensible authenticity is based on the strength of *factual* evidence rather than intellectual. Accordingly, when we work on the interpretation of a historically inherited practice, we adjust our intellect to history rather than the history to our intellect. Historical evidence clarifies the scope within which we can 'interpret' the work in question. Over-reliance on our intellect in understanding a historical practice results in promoting opportunistic understanding which, though unavoidable, we do our best to distance ourselves from due to our respect for, and reliance on, the historical evidence. [227]

This is precisely the point at which the interpretation of the post-1950 'indeterminacy' compositions often becomes confused. Berio re-wrote his *Sequenza* for flute (1958) in 1995 because in his view the notation of the first version was not precise enough. This is a case where exactly the same 'music' is written in two different ways.

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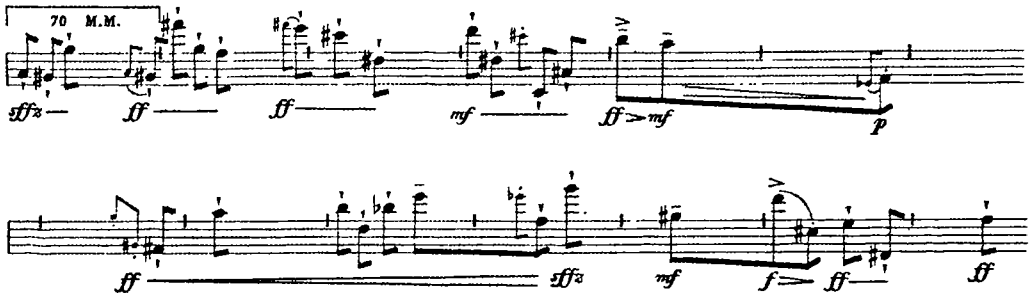
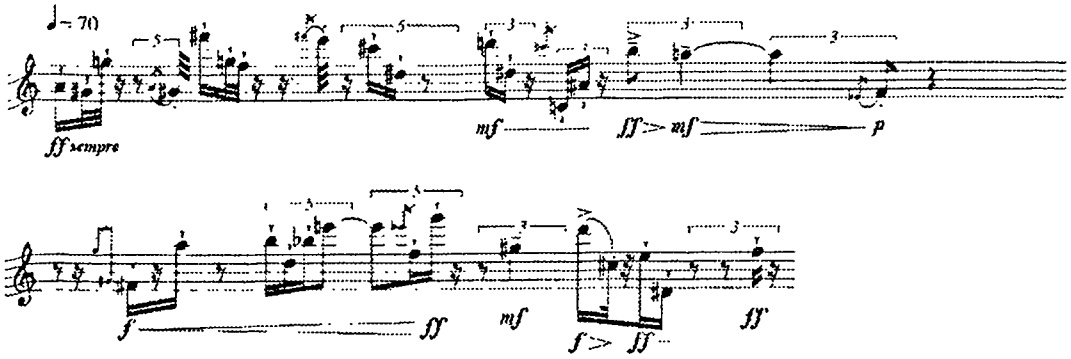
[226] It is worth noting that the practice is often now called 'historically informed' performance practice.

[227] For the discussion of 'sonic' and 'sensible' authenticities, see Peter Kivy, *Authenticities*, Cornell University Press, New York, 1995, pp. 50-52.



Ex. IV 15 Berio Sequenza for flute the beginning in indeterminate notation (1958)[228]



Ex. IV 16: Berio Sequenza for flute – the beginning in determinate notation (1995)[229]

The second version can be seen as an interpretation of the first. Yet it is not difficult to observe that the first version captures the character of the piece – the rhythmic instability and the disjointedness of the notes – more expressively than the second one. The composer's urge to increase the piece's notational precision more than thirty years after its composition suggests that the rhythmic indeterminacy present in the 1958 version is *his* subjective indeterminacy and that this particular mode of indeterminacy has not always been shared by the piece's interpreters in the course of its performance history. One may argue that the second version is Berio's own opportunistic reading of the score. However, his urge for precision makes it clear that subjective indeterminacy is embedded in this composition. The historicity of his

[228] Luciano Berio, *Sequenza* for flute (1958), Suvini Zerboni, Milano, 1958.

[229] Luciano Berio, *Sequenza I* for flute (1958), Universal Edition, Wien, 1995, p. 1.

original creative force back in 1950s identifies the piece far more strongly than any other opportunistic readings which the 1958 score can provide.

The example of Cardew's *Octet '61* points to the fact that an interpretation needs to take account of the historically embedded properties of the composer's particular way of thinking, even when the work was composed as an objective attempt at rejecting and accepting history at large. If the interpreter takes the step towards creating their own version of rejecting and accepting history from the given material, the result will be a theoretically informed performance but with the possibility of failing to be perceived and identified as *Octet '61*.

This leads to another source from which our respect for historical evidence derives: our Romantic legacy. Taruskin observes that authenticity is not 'Modern' but 'Romantic', in the same way as Leonard B. Meyer sees Modernism as 'the late, late Romantic ideology'.[230] Taruskin suggests that our contemporary practices regarding any classical music cannot be explained without the Romantic notion of 'musical works':

> Its beliefs and practices, as enunciated and implemented whether by Schoenberg or Stravinsky, whether by John Cage or Roger Norrington, are all maximalizations of a nineteenth-century inheritance. . . The specific move [the point of departure] is that associated with the emergence of the concept known as *Werktreue*, which is the best possible access to the nebulous cluster of concepts intended by the tainted A-word when contemporary musicians use it. But before there could be a notion of *Werktreue* there had to be a notion of the reified *Werk* – the objectified musical work-thing to which fidelity is owned. The emergence of that concept was the crucial philosophical move, coeval with musical romanticism and virtually defining it. Without it there could be no notion of "classical music." The "museum ideology" which I identify and deplore as the main prop to our modern concept of authenticity could never have arisen until there was something to store in the museum.[231]

So the authenticity movement is a product of our belief that there is a definitive work; the verification of such metaphysical existence often goes parallel with the existence of its historical document, the score. The concept of *Werktreue* has a close

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[230] Cited in Richard Taruskin, *Text and Act*, op. cit., p. 10

[231] Richard Taruskin, ibid.

link with resultant notation in which the phenomenal sound is represented as a *historical* document.

Musical scores in early music have never been intended to bear the representative authority we attach to them, but their power as historical documents increases as time passes and the significance of their factual evidence outshines any intellectual argument. This cultural leaning distinguishes the way in which we approach and practice our tradition. It also explains partially why we chiefly call attempts at the reconstruction of early musical practices 'historically informed performance' rather than 'theoretically informed performance'.

The authenticity movement has shown a particular use of the indeterminacy found between material evidence and its purpose, an indeterminacy that originates from the unique way in which sound is represented in written form. The authenticity discussion has reached a point where the philosophical sophistication of the argument suggests many potential developments for contemporary musical discourse between notation and performance practice.

However, this is not to suggest that our living through history has improved our notational practice. There is a difference between notation which *explains* the elements of music successfully and notation which *expresses* its aesthetic identity successfully. The whole notation of *expression* cannot be measured from the standpoint of technical sophistication. In surveying the history of notation Willi Apel does not fail to remind us that there has never been the possibility of perfect notation, and that notation is in all its various stages the most suitable expression of the music it represents.[232] The value of notation can be assessed by its intelligibility, but I suggest that its ultimate value depends on its expressivity as a written representation of music – the poetic power it provokes in our mind – regardless of whether it is directly intelligible to the performer or not. This may increase the interpretative responsibility of the performer, but such an increase would amount to a step towards more creative and imaginative engagement with the music on the part of the performer. Indeed one can say that whatever is the notational style, the more the music allows the performer to retain indeterminacy in performance practice, the more expressive it is.

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[232] Willi Apel, *The Notation of Polyphonic Music 900-1600*, op. cit., p. 86.

V. Sculpting in Time: temporality and the music of Giacinto Scelsi

Density of experience

> Grown-ups love figures. When you tell them that you have made a new friend, they never ask you any questions about essential matters. They never say to you, "What does his voice sound like? What games does he love best? Does he collect butterflies?" Instead, they demand: "How old is he? How many brothers has he? How much does he weigh? How much money does his father make?"[233]

De Saint-Exupéry illustrates succinctly the all – too – human nature we betray in the two sequential yet different phases of life. Both children and grown-ups are curious about this new friend, but their curiosity can be satisfied by totally different kinds of enquiry. Their respective means of enquiry can diverge to the extent that they start wondering what being a friend can possibly mean. The qualitative difference between children's and grown-ups' curiosities is self-evident. However, one cannot simply attribute this difference to that of the difference between innocence and sophistication. The difference exists not because of a limitation either children or grown-ups have in their ability to understand the object (in this case a new friend); the difference is in the choice made in their respective minds as to what they believe should be discovered about this or any other object in an encounter.[234]

A new encounter with a work of art resembles one with a new friend in so far as it exposes the social and cultural categories of concern by which our curiosity towards an object becomes fulfilled. Subjective and objective attitudes co-exist in every encounter with music, but these attitudes are often accompanied with an implication of having either a naïve or intelligent mind. As musicians, we are all

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[233] Antoine de Saint-Exupéry, *The Little Prince*, translated by K. Woods, Heinemann, 1945, pp. 17-18.

[234] This may also be described as a difference of agenda between children and grown-ups – children wanting a friend who supports and joins what they want to do whilst grown-ups wanting them to have a friend who is, in their eyes, 'suitable' for their own children. However, a different attitude can often exist without any pre-conceived agenda. De Saint-Exupéry's example is of this fundamental kind of partition, where the difference between children and grown-ups originates less from the difference of agenda and more from the different use of imagination, for the advocation of which De Saint-Exupéry wrote this book.

trained to cultivate an analytical mind: it is assumed that by distancing oneself from the object of enquiry one increases in one's work (including composition, performance and musicology) clarity of expression – a neutral ground necessary for wider reception.[235] In analysing music, we often approach the music in as objective a way as possible because disinterestedness (or lack of bias) operates as an essential instrument towards achieving rationality and an increased degree of universality. This neutrality of analysis has benefited many musicians in understanding (or more often speeding up the process of understanding) the essentials and the immanent features of the music in question. However, analysis is often considered, unfortunately for the discipline itself, as having gone too far into the direction of objectivity and having sometimes come ever closer to the archetypal 'grown-ups' when understanding music.[236]

However, subjectivity is integral to any process of aesthetic understanding for the very reason that understanding necessitates a subject who comes to contact with the aesthetic object. Subjectivity goes through a particular metamorphosis when associated with objective concepts represented empirically, in 'figures', or in notes when appropriating a work of music. Here objective concepts can be considered as semiotic symbols as a result of particular rules agreed *a priori* between subject and object; they function as instruments of rationality that step towards universality. In doing so objective concepts often represent collectively agreed subjectivity, that is *objectified subjectivity*.[237] The attempt at pure disinterested universality in a work of art is in this way an impossible enterprise as long as it remains a work of art. This

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[235] The aim of such an approach is to gain universal knowledge; this mode of acquisition of truth is a philosophical product: Foucault studies the ways in which the subject becomes an object of possible knowledge – 'the processes of subjectivation and objectivation that make it possible for the subject qua subject to become an object of knowledge, as a subject' (p. 460) and explains how much our concept of knowledge has historically relied on this mode of knowledge acquisition and what problems this has entailed. Michel Foucault, 'A Preface to Transgression' (translated by D. F. Bouchard and S. Simon, pp. 69-87) and 'Foucault' [sic] (translated by R. Hurley, pp. 459-463), *Aesthetics, Method, and Epistemology* (Essential Works of Foucault 1954-1984, Vol. 2), edited by J. M. Faubion, translated by R. Hurley and others, Allen Lane the Penguin Press, London, 1994.

[236] Jonathan Cross approaches the music of Harrison Birtwistle from a handful of contexts relevant to Birtwistle's work and offers analyses of his compositions in these contexts. This can be seen as an example of the current movement to relocate analysis as a more context-specific and subjective understanding of musical works. Jonathan Cross, *Harrison Birtwistle*, Faber, London, 2000.

[237] Foucault explains further the 'shattering of the philosophical subject' that takes place in the acquisition of truth: 'it is at the center of the philosophical subject's disappearance that philosophical language proceeds ... to test the extremity of its loss. That is, it proceeds to the limit and to this opening where its being surges forth, but where it is already lost ... [and] emptied of itself to the point where it becomes an absolute void – an opening which is communication.' Foucault argues that such an objectified subjectivity still has problems of not acknowledging fully the presence of the transgressed subjectivity in the object, the presence of which is fundamental for the production of philosophical language – and also that of aesthetics. Michel Foucault, 'A Preface to Transgression', op. cit., pp. 79-80.

particular connection between subject and object – filtering of subject within the object – is vital but extremely subtle in many works of art to the extent that our attempt at understanding, such as the act of music theorising, can easily mislead us into deluding ourselves about the complete objectivity of our understanding.

Theodor Adorno observes many aspects of the metamorphosis between subject and object, an area that is rich in dialectical potential. He suggests that the principal artistic significance in the contact between subject and object is the fact that 'the artwork becomes objective as something made through and through, that is, by virtue of the subjective mediation of all of its elements',[238] and elucidates dialectical forms of subject-object metamorphosis at varied levels. A subjective mediation of objective elements in the object enables subjectivity to merge with and grow into the objectiveness of the object. This vision leads him to the view that the signifying practices embedded in the musical work can be decoded into sets of particular social and cultural conditions, and the suggestion that the complicity of the socially and historically constituted subject is essential to appreciating the immanent structures of the work.

Despite the Modernistic objectivity of his theories, he describes problems with the ways post-war society at large operates this metamorphosis, including the way new music does, and here his observations become particularly relevant.

As much as he objects to non-structural listening to music, he reproaches the formalistic approach towards music which often passes for Modernism. His distinction between the formal and structural becomes particularly clear when he discusses the ways in which the density of experience plays a part in the musical discourse. A work of art has its own material through which it is presentable, but its materiality often gives rise to problems.

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[238] Theodor W. Adorno, *Aesthetische Theorie*, Suhrkamp, Frankfurt am Main, 1970; translated by R. Hullot-Kentor, *Aesthetic Theory*, Athlone Press, London, 1997, p. 168. Besides this book, the following ones are equally rich in discussing the same issues: Theodor Adorno and Hanns Eisler, *Composing for the Films*, Athlone Press, London, 1994; Theodor W. Adorno, 'On the Problem of Musical Analysis', translated by M. Paddison, *Music Analysis*, Blackwell, Oxford, Vol. 1, No. 2, 1982, pp. 169-187. Similarly, his work beyond music also elaborates and critiques objectified subjectivity – the notable example is *The Jargon of Authenticity* whereby he most lucidly accuses Heidegger of imposing a 'jargon', his objectified subjectivity, to the detriment of philosophy. Theodor W. Adorno, *Jargon der Eigentlichkeit: Zur deutschen Ideologie*, Suhrkamp, Frankfurt am Main, 1964; *The Jargon of Authenticity*, translated by K. Tarnowsky and F. Will, Routledge and Kegan Paul, London, 1973.

> What confronts artists with the kind of objective impenetrability with which their material so often confronts them, an impenetrability analogous to the construction of the given in epistemology, is at the same time sedimented subject...[239]

In other words, the material *should* maintain the aspect of sedimented subject within it – in order to allow the artist, the subject, the room to *structure* it – as long as the work remains aesthetic.

Adorno considers that formalism has given a way for artists to divorce their material from the involvement of subjectivity; that post-war Modernist composers made use of pre-fabricated material to the extent that they substituted pre-compositional decision-making for composition by creating a complexity divorced from the density of experience. Although his view may be biased,[240] his concern is justified by the fact that such music can generate a response from society that agrees with its aesthetic of production. Indeed industrial mechanisation brought a society for which pre-fabrication, pre-meditation and pre-determination are the norms. Being driven by pre-conceived knowledge/material leads us closer to letting it run through the Whole as an instrument of rationality, a phenomenon that best characterises the modern age.[241] Adorno's concern is based on the idea that objectivism represents an impoverishment of subjectivity: the formalistic approach in modern music can rely heavily on a-historical, a-social, and subjectively unmediated material, thereby lessening the degree of involvement of the subject in creating and experiencing the musical work.[242]

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[239] Theodor W. Adorno, *Aesthetic Theory*, op. cit., p.166.

[240] In discussing Adorno and his polemics over new developments in modern music, Max Paddison points out that 'Adorno's 'conflict theory' of musical progress and regression still has a relevance for the pluralism which characterizes music in the late twentieth century. Its relevance is that it points both to the total negation of musical material in any traditional sense and, simultaneously, to the total expansion of musical material to embrace everything'. He argues further that musical material has left the ideals of coherence and integration and moved on to become an element which is 'totally relativized and lacking in 'historical necessity' to the point where it ceases to have any meaning in the sense in which Adorno had used the term 'material''. Max Paddison, *Adorno's Aesthetics of Music*, Cambridge University Press, Cambridge, 1993, p. 274.

[241] Alastair Williams discusses the relationships between Adornian modernism, high Modernism, and the discourse of subjectivity in musical analysis in his article 'Torn Halves: Structure and Subjectivity in Analysis', *Musical Analysis*, Blackwell, Oxford, Vol. 17, No, 3, 1998, pp. 281-293. I owe much to his insight into Adorno's observations on high Modernism.

[242] By comparison, the structural approach – including listening – will *create* forms through the experience, the subject-object contact reaching the point of metamorphosis at which the subject becomes the objectified subjectivity and thus merges with the object.

Recent decades have seen increasing and wider attempts at rediscovering subjectivity and the involvement of the subject in musical and artistic discourses. One of the particular movements is the attempt of musical analysis to involve performance as part of its discourse. This movement is not restricted to the analysis of the traditional classical repertoire, and is even more enthusiastically pursued using examples from world and popular musics.[243] Through involving performance, musical analysis first of all gains proximity to practical issues surrounding the musical object it investigates. A proximity with performance also means an increase in the proximity with practicality in appreciating the musical object. Performance's concerns with practical issues are directly related to the sounding object, as its instantaneous temporary nature makes the process of objective (analytical) contemplation constantly relevant to the musical experience, keeping the experience from evaporating into figures and abstract forms.

Performance engages the musical work directly when the musical work is still unfolding in performance. We are aware that the time it takes for the musical work to be presented is the time the performance is happening. This concurrent operation shared between the subject (performance) and object (musical work) contributes a particular quality to their relationship. Their concurrency of creativity is bound by time. The engagement between the subject and object of an aesthetic experience can be strenuous for both the subject and object. It can be even unforgiving when the contact exists only in the temporal dimension, because everything has to obey the merciless flow of time. Indeed, performance can crudely expose the vulnerability of the subject or object involved, far more than most of the other musical disciplines do. But this simultaneous co-operation between the work and its performance is subtle and often forgotten. It is subtle because the sound-production facilities (as opposed to physiological auditory faculties) we have, make it possible for us to conceive that a performance exists *a priori*. The view that performance is a representation of the ready-existing conceptual work (the recording

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[243] Notable examples are Eric. F. Clarke, 'Subject-Position and the Specification of Invariants in Music by Frank Zappa and P. J. Harvey', *Music Analysis*, Blackwell, Oxford, Vol. 18, No. 3, 1999, pp. 347-374; Nicholas Cook, 'Analysing Performance and Performing Analysis', and John Rink, 'Translating Musical Meaning: The Nineteenth-Century Performer as Narrator', both published in *Rethinking Music*, edited by N. Cook and M. Everist, Oxford University Press, Oxford, 1999; Jonathan Dunsby, *Performing Music: Shared Concerns*, Clarendon Press, Oxford, 1995. Also it seems appropriate to mention Hans Keller's technique of functional analysis as a precursor to the motivation of this movement. See for example Hans Keller, 'Wordless Functional Analysis: the First Year', *Music Review*, Heffers, Cambridge, Vol. 19, 1958, p. 192ff.

or the score) is likely to lead to the devaluation of this concurrency of operation between what will be known (by the end of the piece) as a musical work and its performance.[244] This is rarely fully understood even by performers, except on the occasions where they perform an unknown work or are giving the first performance of a new work.

Focussing on this aspect of performance can offer another dimension that is hitherto unknown to musical analysis. Analysis is, by its epistemological definition, applicable only to the object which has reached a stage of completion that permits analysis. One cannot analyse an object – regardless of the type of analysis and the object to be analysed, whether it is music analysis or psychoanalysis or chemical analysis – unless the object is presented (or presentable) as a closed entity.

Concurrency – such as that found between musical works and their performance – is virtually foreign to musical analysis: whether in the analysis of composition, or the analysis of performance, music theory has been applied most of the time to the finished product produced by the other disciplines. The authoritarian tone of analysis produces particular criteria for composition and performance. If a composition or a performance is to be considered good, it suggests that the performance was conceived according to the criteria provided by analysis, or that the composition used the tools of analysis for its construction.

Despite this one-way tendency, analysis has inspired composers – for better or worse – and has led to the production of a considerable number of compositions in recent years.[245] Many composers are good analysts precisely because they are well informed by their own creative experience about the possible applications of analysis in composition. One specific character of these concurrencies – between the musical work and performance, and between composition and analysis – is that they are mutually incomplete while in contact. The former pair is incomplete until the full span of time has elapsed and the latter is also incomplete as far as the composition remains in progress and the analysis hasn't grown into a theory. In the latter pair

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[244] Jonathan Dunsby presents a similar form of concurrency in his book *Performing Music: Shared Concerns* (op. cit.). He observes a dynamic relationship between human judgment and natural contingency at work in musical performance and brings to light a multitude of issues that reflect the duality between 'what people seem to think' and 'what may conceivably happen' in music. Although his book discusses mainly issues that concern both theory and performance in general musical practice, it has a significant link with the present discussion in recognizing the possibilities of coordinating the objective contemplation and subjective action.

[245] It can be said that many of Stockhausen's works are well known partly because of the remarkable quality of his quasi-objective analytical insight into his own works. See for example, Stockhausen, *Texte zur Musik*, op. cit.

their concurrency is that of creativity found amidst their effort to forge their respective work at hand. Their concurrency is a choice rather than an imposition and this allows composition to engage analysis in a more positive manner. This also makes it distinct from other types of mutual co-operation that can be established between the two disciplines.

Can we find ways in which analysis engages performance in a manner in which the two can concurrently share creativity in a positive mode? Nicholas Cook suggests that there is an epistemologically justifiable way in which analysis does not simply reflect meaning that is already in music but participates in its construction,[246] thus indicating a possibility for analysis to form concurrent working-relationships similar to what we have already seen between composition and analysis. His claim – that analysis can participates in musical construction – directs us to the possible areas in which such creative concurrency can be found between analysis and performance. But performance is a temporal action that permits construction in no other dimension. Any creative concurrency between them must take a particular form that engages the temporality of performance and the contemplative process of analysis on the same level. Such a relationship must thereby provide a platform on which, as Tim Howell suggests, the conflict between the rational and the instinctive approaches can produce a highly creative force and offer the possibility 'to exploit this creative force, to play off intuitive responses against analytical perceptions in order to shape an interpretation' for both disciplines.[247]

Viewed from the subject-object antithesis, analysis accesses the density of experience in the object; whereas performance proceeds *through* the density of experience into the object. Analysis only gains proximity to performance when we discover how to appropriate the performance's progress through the density of experience. Analysis does not have to take the 'musical work' to be its aesthetic object. Analysis can situate performance as the object of enquiry, the features of which contain the traces of the unique creativity shared between the performer and the work, traces that are so much part of what we perceive as the musical work.

Understanding the musical work as continuity and process, as best represented in performance, and analysing the work from this point of view with less

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[246] Nicholas Cook, 'Analysing Performance, Performing Analysis', op. cit., p. 252ff.

[247] Tim Howell, 'Analysis and Performance: The Search for a Middleground', *Companion to Contemporary Musical Thought*, edited by J. Paynter and T. Howell, Vol. 2, Routledge, London, 1992, p. 698.

emphasis on its closed entity, may be a way forward.[248] This approach is applicable and seems fruitful for a large number of works in the mainstream repertoires for which the acoustic identity of the works is already known – that is, when some ideas about their performance practice are already established. However, many less known or new compositions do not have an established performance practice due to their lack of performance history.

But compositions have an existence before their performance takes place, and this fact suggests that performance does not have to take place for a musical work to exist. On the other hand, performance can exist only in one's head or in an unidentifiable form that is somehow clearly identified with other forms of representation of the work – for instance the score. The concept of musical performance is actually just as nebulous as that of 'musical work': what is understood to be a performance depends on a theoretical understanding of the contextual factors attached to the work. Here musical performance has an affinity with analysis in its manner of cognitive identification of the work, in that the assessment of identity necessitates the involvement of a theoretical model:

> Theory ... is the means by which the individual is rendered perceptible *as* an individual. And it follows from this that the 'illumination' of the individual ... is possible only to the extent that it is measured against (or explained in terms of) some kind of theoretical model.[249]

Because of the frequency with which musical works are identified by their performances, performance has a significant role in determining the perceived individual quality of a musical work. In short, by providing a dynamic individuality to a composition, performance *creates* what is largely perceived and known as the musical work. This is particularly true in cases in which the composition leaves either too little or too much information for performance. The perceived identity of such a work depends on the elements which the performance articulates against the background of what it takes to be its theoretical model. Despite the diverse and unpredictable nature of the factors that determine the work's individuality, analysis can collaborate with performance in this: figuring out the unknown paradigms

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[248] John Rink indicated possible ways to introduce this concurrency of creativity between analysis and performance in his recent paper 'Performance Studies: The State of Play' at *Performance 2000*, 35th Annual Conference of the Royal Musical Association, University of Southampton, April 2000.

[249] Nicholas Cook, 'Analysing Performance, Performing Analysis', op. cit. p. 254.

buried in a composition, paradigms unknown even perhaps to the composer, in order to create a 'musical work' whose identity corresponds to its density of experience and thereby celebrates the existence of that composition and our creative imagination.

Xnoybis: the question of musical content

Giacinto Scelsi (1905-1988) is perhaps one of the most original composers to have become known in the last twenty years. The influence of his work on today's music is clearly audible in the works of many younger composers. However, despite such interest, his compositions are still rarely discussed analytically. This suggests that the expressive significance of his music lies outside the concerns of present day musical analysis.

The analysis of the traditionally important parameters of pitch and rhythm in his scores gives the impression that his compositions are primitive and crude. Indeed, most of these compositions consist of only one or two notes being sustained with variations throughout the piece.[250] When there is a rhythmic articulation, it merely divides the total duration into large structural segments. The music appears to have very few compositional devices in the traditional sense: notions such as theme, counterpoint, exposition and development, all seem irrelevant. His *Xnoybis* for solo violin, a three movement piece lasting about nineteen minutes, is no exception (see Appendix III for the first movement).

It is easy to dismiss his work as experimental and a novelty that will enjoy only an ephemeral life. However, the reception of his music has proved otherwise, and its sustained popularity suggests that there is more substance to it – that it is worth considering as a challenging case for musicologists. There must be a significance that goes beyond the mere novelty of his sound world. Otherwise how can we explain the enduring aesthetic appeal of a music that recognises no remarkable background and that survives all the technical difficulties it imposes on

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[250] Incidentally, the principal method of sound production Scelsi uses in his compositions for stringed instruments is very similar to that of the 'vibrato by sympathy and attraction' discussed by Luis Alonso in the nineteenth century (see Appendix I). The variety of vibrato types in the eighteenth and nineteenth centuries can inform us about many technical possibilities of execution in the works of Scelsi.

the performers?[251] We must find a critique that adequately expresses the significance of this music, a critique that also explains its importance in the recent development of new music.

Scelsi produced notation by transcribing the sound he produced on an electronic instrument called the ondiola, which allows microtonal variation. This task of scoring was carried out with the collaboration of an assistant, a procedure that has caused unfortunate legal problems of authorship after his death. This information suggests that the notated score doesn't always stand for the work with a competence and authority expected of his contemporaries in Western music.[252] The score is rather a desperate attempt to express the work in the common notational language. We now confront a major problem: in the absence of *authority* in the score, what musical material can we take as a genuine source for getting to know the work? Here is a situation where the 'musical work' as we customarily know it does not quite exist. We have some vague ideas about what the composition is about and what its performance sounds like. We are still merely overwhelmed by the individuality of the music.

A performance of a composition that has the blessing of the composer is generally considered to stand as a model representation for the work. Recordings of Scelsi's music have helped the dissemination of his work considerably more than the printed scores alone could possibly have done. However, these recordings are not source material in the sense that a tape in an electroacoustic work is. They remain tokens of the work, rather than being integral to the work itself.[253] These recordings, as well as the comments made by the composer during the recording sessions, are immensely useful references. But that does not justify their becoming considered as source materials unless the composer created the work with the production of these

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[251] Most of his works for stringed instruments involve *scordatura* of a kind that requires not only detuning of the strings but sometimes replacing some of the strings. In *Xnoybis*, for example, the designated tuning of the note G on the D string (the fourth above the normally tuned note) is achieved by using another A string on the D string position. It involves a time-consuming operation of de-stringing, re-stringing, re-tuning, and letting the strings settle (a minimum of ten minutes). This makes it difficult to programme the piece in concert situations.

[252] See the remarks concerning the errors in the score of *Xnoybis*, in Appendix III.

[253] There is a clear distinction between the performance and recording of musical works: performance is directly part of the musical work in the sense that music is indeed created for performance. Recording is, on the other hand, reproductions of that performance and has no direct bearing on the creative process of the work as discussed earlier in this section. The difference between performance and recordings is becoming less discernable as many musical works depend increasingly on their recording for their dissemination. However, the distinction between the two remains.

recordings being the main objective of the composition.[254] Meanwhile, the scores are produced as one of the first means (the other being the first performance) of publicising the compositions; scores are written with an intention for repeated use. It follows from this that the specifications Scelsi made in the score can still be considered the most genuine source materials available for us. We only have to discover *how to read them.*

Scelsi's notational method is unique: most of the works for stringed instruments are written in systems of four staves – one stave for each string. Thus, a string quartet is written over sixteen staves. His notation articulates actions to be carried out on the individual string, such as pitch fluctuation, dynamic, and timbral variation. This means that two adjacent strings can have different dynamics and different pitch fluctuations at the same time. On paper the composition looks polyphonic. However, the independence of each line is barely audible, because for most of the time they are playing the same note with only small intervallic differences of microtones between them.

What we hear instead of multiple lines is a multitude of acoustic properties produced by a unison. The sound is not only an aggregate of notes, but an aggregate that includes all the acoustic events incidental to the notes themselves, as well as the clashes between them. These incidental events are, for example, the overlaps of dynamics that can cancel each other out, beats between two close pitches, harmonic overtones and sub-tones, and non-harmonic noise produced by bowing articulations, to name but a few. Such an interplay of acoustic properties characterises the sound far more than the written notes themselves purport to do.

Seen from this point of view, the materials that make up the sound now begin to matter significantly. The quality of sound is largely determined by the instrument used for projecting it. It can also be said that the given instrumentation determines the extent of timbral variety. For example, when a quartet plays exactly the same note, the violins' sound nevertheless has a different character from that of the cello. Material designation such as instrumentation or the specified choice of the string is crucial to Scelsi's music, to the extent that it is perhaps the most important information contained in his scores.

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[254] Besides, he may have used a recording facility as an extended memory aid to help the notation of his works. However, such recordings (none available at present) are part of the compositional process for Scelsi and cannot be considered as source material.

We may describe this aspect of sound as giving depth to the notes. Scelsi himself claimed that the sound of his music is spherical, meaning three-dimensional. A sound bears an organic energy which possesses the microcosmic world of diversity within itself. A note is, on the other hand, a fixed set of parameters. Here the distinction between note and sound is clear in that the note is only one dimension of the sound. The density, proportion and distribution of acoustic properties within the sound is where the musical structure takes place in Scelsi's compositions.

How can such a structure be articulated? With neither notes nor rhythms to articulate the structure, a successful performance of Scelsi's composition relies on the manipulation of two parameters: one is duration, the other is timbre.

Time and movement

The parameter of duration gives the outline within which acoustic energy articulates itself in these works. In Scelsi's works there is a marked preference for organic forms such as those based on Golden Section principles and palindromic forms. Structures such as variation and sonata forms are not really possible because their structural articulation depends on the segmentation of a sound into pitch, register and rhythm, into parameters which formulate groups of phrases and keys. When the sounds of a work refuse to be segmented into such fixed parameters, its expressive structure can be seen as a framework that is independent of the structure of its materials. This independence also guarantees more open and spontaneous organisation within it. The choice of temporal structures is limited by the very language of the energy itself.

The independence of temporal structure from material can be observed in other art media. The issues are often discussed in cinema. Andrey Tarkovsky wrote:

> How does time make itself felt in a shot? It becomes tangible when you sense something significant, truthful, going on beyond the events on the screen; when you realise, quite consciously, that what you see in the frame is not limited to its visual depiction, but is a pointer to something stretching out beyond the frame and to infinity.[255]

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[255] Andrey Tarkovsky and Olga Surkova, *Die versiegelte Zeit*, Alfred A. Knopf, 1986; Andrey Tarkovsky, *Sculpting in Time*, translated by K. Hunter-Blair, University of Texas, Austin, 1998, p. 117. The present Chapter takes its title from this book.

Questions concerning time are universal in any medium of art but are perhaps more stringently relevant in the media that deal with duration, that reveal their work in time, such as cinema, dance, and music. Cinema provides us with valuable insights into the ways in which the modern world captures time, more than any other artistic media, perhaps because of its being a modern invention and also because it has grown to become one of the most accessible artistic media to modern audiences.

The beginning of cinematic invention brought about several philosophical challenges in understanding the nature of time.[256] One of the first challenges was to understand the relationship between objects and movement. In 1907, Henri Bergson gave a formula in which movement is understood as an element distinct from the space which it covers:

> Space covered is past, movement is present, the act of covering. The space covered is divisible, indeed infinitely divisible, whilst movement is indivisible, or cannot be divided without changing qualitatively each time it is divided.[257]

However, one cannot reconstitute movement only by exhibiting immobile sections – photogrammes – in sequence. One 'can only achieve this reconstitution by adding to the sections the abstract idea of a succession, of a time which is mechanical, homogeneous, universal and copied from space, identical for all movements'.[258] Such reconstitution reveals the nature of movement: that one always misses – fails to command directly – the movement. One can 'bring two sections together to infinity' but 'movement will always occur in the interval between the two, in other words behind your back'.

This leads to an assumption that cinema can be understood as images to which movement is added. But this raises further problems: what cinema gives us is not a series of photogrammes at the rate of twenty-four images per second. What we see is 'an intermediate image, to which movement is not appended or added; the

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[256] It is worth noting that this coincided with the development of phenomenology – in fact one of the exponents of film philosophy was Henri Bergson who was also a crucial figure along side Edmund Husserl in establishing phenomenology as a philosophical discourse.

[257] Bergson's thesis, *Creative Evolution* (1907), is explicated in detail by Gilles Deleuze who takes Bergson's theories as a starting point for his. The given quotation is in Deleuze's words. Gilles Deleuze, *Cinema 1: The Movement-Image*, translated by H. Tomlinson and R. Galeta, Athlone Press, London, 1989, p. 1.

[258] Ibid. Further quotations also derive from the same source unless otherwise stated.

movement on the contrary belongs to the intermediate image as immediate given'.[259] Cinema immediately gives us a movement-image, an image that is mobile. This mobility has its own power of expression. Thus movement-image creates its own duration, which also formulates a tangible section that is organic and mobile.

The existence of movement-image is clear when one examines the relationship between the individuality of movement and the individual photogrammes. Photogrammes do not give us an object described in a unique moment but 'the continuity of the movement which describes the object'.[260] In other words, we understand the object in photogrammes only through our perception of its movement. The cinema's expressive dependence on movement-image is even clearer when compared with long-exposures: whilst photogrammes produce singular points which are inherent to movement, long-exposures give us a moment that actualises transcendental forms of the object with the recorded movement. Cinema's ability to allow movement to be mobile images – rather than an element trapped within immobile instances – can be seen as the source of creative force in cinema.

So what does movement do to cinema? Movement is a change in space. This change concerns firstly objects and parts in space, but also affects the whole qualitatively. Here are two of the examples Deleuze gives in order to explain this qualitative change:

> If I consider parts or places abstractly – A and B – I cannot understand the movement which goes from one to the other. But imagine I am starving at A, and at B there is something to eat. When I have reached B and had something to eat, what has changed is not only my state, but the state of the whole which encompassed B, A, and all that was between them.
>
> If we think of pure atoms, their movements, which testify to a reciprocal action of all the parts of the substance, necessarily express modifications, disturbances, changes of the energy in the whole. [261]

Movement consists of relational and qualitative changes between the objects and parts. Movement cannot exist without time. Or, time is the element which causes these changes in the objects and parts through movement. It is time which gives the

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[259] Ibid., p. 2.
[260] Ibid., p. 3.
[261] Ibid., p. 8.

openness to the qualities of the objects, and the dynamic mobility to the movement. Time is duration in its relation to a cinematic whole. Or, the cinematic whole *is* duration, as long as the whole consists of a poetics of movement with the objects and parts being given to qualitative changes.

> Duration, by changing qualitatively, is divided up in objects, and objects, by gaining depth, by losing their contours, are united in duration.[262]

Duration is not a sum of its parts – precisely as Tarkovsky suggests in his own statement. What movement does to cinema is to open up the objects and parts to time and create a whole that is as expressive as life in its qualitative mobility.

Viewing the whole as a duration made of movement-images rather than a collection of moving objects within closed systems increases our awareness of varied relationships through time. The camera in cinema functions as a pivotal point in creating these relationships. For example, it can create different time-images within the same duration. An object can be presented in its static state as in a photograph. The same object can be presented in its still state. In the former case, the camera emphasises the time outside the object, the duration which passes in front of the viewer as if standing in front of a photograph: thus it brings out the qualitative changes between the image and the viewer. In the latter, the camera emphasises the time which passes within the image as if the camera is watching the object: thus it brings out the qualitative changes between the object and the camera. In other words, the former articulates the time in which the object exists or occurs, whilst the latter the movement (or immobility) of the object. The former is used in montage technique and the latter in the shot. It is this aspect of manipulating relationships of time that can be so excellently articulated in cinema:

> ...Tarkovsky challenges the distinction between montage and shot when he defines cinema by the 'pressure of time' in the shot. What is specific to the image, as soon as it is creative, is to make perceptible, to make visible, relationships of time which cannot be seen in the represented object and do not allow themselves to be reduced to the present.[263]

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[262] Ibid., p. 11.

[263] Gilles Deleuze, *Cinema 2: The Time-Image*, translated by H. Tomlinson and R. Galeta, Athlone Press, London, 1989, xii.

Xnoybis: time and its perceptual qualities

Cinematic insights into the perceptual structures of movement suggest ways in which a musical work can be analysed. Here musical performance can be seen as the musical equivalent of cinematic presentation, in that both unfold in the temporal dimension.

The single striking feature of the first movement of *Xnoybis* is that the pitch moves gradually from E up a tone to F sharp and down a semitone to F. The overall form is relatively simple: the climactic arrival at F sharp in bar 49 occurs at the point of the Golden Section after which the pitch falls gradually back to F. The middle section, which starts with quicker glissandi on the second string from bar 33, increasing the frequency with which varied gestures appear and build up the texture until the climax at bar 49, falls precisely between the secondary Golden Section and the principal Golden Section.

But an enquiry needs to be directed towards the contents and their interrelationship with each other which render such formal architecture inevitable. The economy of material in *Xnoybis* forces the performer to experiment with all possible relationships within the limited materials, including movement images – forms of qualitative changes – created in between the materials. Looking closely at the beginning of this movement, what can we find? *Xnoybis* begins with the note E constantly undermined by the D sharp a semitone lower. The first thirteen bars can be considered as an introduction of this movement (it starts *molto p* and gradually raises itself to sporadic *mf* gestures in bars 11-13 before calming down again in bar 15; the register is restricted to the initial E / D sharp semitone all the way to the entry of the top D sharp in bar 14 which marks the beginning of a new phrase, or the beginning of the main section). The gestures on the first string catch our attention: the pizzicato notes on the open D sharp are heard clearly and most of the gestures on the first string occur in the hiatuses of dynamic shapes (except in bar 10). One could focus the music around the gestures of the first string, the contrapuntal line of which remain perhaps the most eventful among the four represented on the four strings.

However, the introductory section is more successfully approached from another view point; taking the third string, with which the piece begins, as the leading force in the section. All the entries on the third string in the introductory section are consistent in their wavering timbre. All the entries (except the one in bar

10) can be seen to start building up the texture to articulate phrasing shapes: the first entry leads a gradual timbral colouring on the upper two strings culminating on the D sharp pizzicato on the first string at the beginning of bar 4. The *diminuendo* on the first note is in this case deceptive as the notes on the second string increase the beatings and the sonority of the texture as a whole. The second phrase is a durational diminution of the first. The third phrase, from bar 6 to bar 9, consists of two parts: the first is a variation of the initial phrase followed by the second beginning immediately after the start of the E on the first string in bar 9, which reverses the motion of the last few crotchets. The fourth (starting with a tied-over D sharp on the second string at the end of bar 9) and the fifth (starting in bar 12) phrases form *stretta* towards the climax at the end of bar 12. By phrasing this way, the gestures on the first string gain structural support. Or rather, these phrases make the first string gestures sound inevitable in the flow of time.

Constructing phrases around the materials on the third string has another point: it articulates the entry of a new register at bar 14 where the third string goes silent for a considerable duration for the first time. This increases the dramatic effect of the entry in the new register. As the music progresses the frequency of registral shifts between the three octaves (the lower register is introduced later at bar 53) increases; a careful preparation for the introduction of the top register at bar 14 can help to articulate the overall structure.

A close investigation into the materials in this introductory section points to the fact that the individual materials – note events – are not the chief constituents of the discourse of this music. What distinguishes this work is that the note events only contribute to the qualitative changes in the sustained vibration of the pitch. The piece is not a timbral orchestration on a single note; it is about the drama of a vibratory energy that transforms its quality through the piece. All the note-events are subordinate to this narrative of qualitative change in the vibration.

We can see such qualitative change already in the introductory section. In the very first phrase (bars 1 to 4) the different timbres, articulation and notes occur as independent objects. What is perceived is the difference and independence of each gesture, their strangeness, rather than their proximity to each other in terms of dynamic and pitch. In other words, the note-gestures at the beginning don't interact between themselves. The proximity of pitch and dynamic levels only sharpens the differences between them. It is in the third phrase (from bars 6 to 9) that we begin to

recognise the similarity between the note-events as they begin to relate to each other by co-ordination (the first string entry in bar 8 can be seen as a taking-over from the third string) and phrase shapes (the second half of the third phrase – from the second half of bar 8 to the end of bar 10 – can be seen as a 'response' not only to the first half of the third phrase but also to the first two phrases). By the end of the introductory section (bar 13) the note-events have left the initial strangeness and merged with each other, and they co-operate in producing more sonority and variety to the material, to the extent that the material is ready to introduce the first overtone of its main pitch – a gesture that only comes from a sufficient degree of homogeneity between the vibrating components – in bar 14.

In this way note-events contribute towards changes in the quality of the material at a given moment. We are more accustomed to notice gestures taking a leading role in articulating the structure, be it melodies, motifs, harmonic or instrumental sequence. It is relatively rare that the perceptual qualities of transformation of a single object take expressive priority in a musical work. Giving priority to qualitative transience over expressiveness naturally presupposes a condition in which the object (the subject of transformation) is relatively simple in its identity, in order for the qualitative changes to be perceived. This is perhaps, simply a variant of the question of why early still-life paintings fascinate us. Writing of the works of Jean-Baptiste-Siméon Chardin, the exponent of the movement to bring still-life paintings to the status of an art form in the eighteenth century, Michael Baxandall points out that

> He can and often does make a story out of the contents of a shopping bag. He narrates by representing not substance – not figures fighting or embracing or gesticulating – but a story of perceptual experience masquerading lightly as a moment or two of sensation.[264]

Interestingly, the perceptual quality of objects occupied another, more recent still-life painter, Georges Braque, who said 'objects do not exist for me except in so far as a rapport exists between them or between them and myself. When one attains this harmony one reaches a sort of intellectual non-existence... which makes everything

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[264] Michael Baxandall, *Patterns of Intention*, Yale University Press, New Haven, 1985; cited in Isabel Carlisle, *Chardin 1699-1799* exhibition leaflet, Royal Academy of Arts, London, 2000, p. iv.

possible and right. Life then becomes a perpetual revelation. That is true poetry.'[265] He was also concerned with the creation of pictorial space between objects, stating that 'there is in nature a tactile space, I might almost say a manual space. I have always felt the urge to touch things and not just to look at them. That is the kind of space that fascinated me so much, because that is what early Cubist painting was, a research into space.'[266] The qualitative appreciation of objects necessitates a contemplation of the interrelationship between them in the dynamic whole.

In *Xnoybis*, the qualitative changes in vibration are the main component of the musical drama. Hence the relationship between the role of note-events on the one hand and that of qualitative changes in vibration on the other hand has a vital consequence in its performance practice. What needs to be articulated is the quality of vibration at every moment, rather than the articulation or distinctness of the note-events. In the introductory section, the performer needs to allow time to pass *inside* the material and *between* the gestures in order to articulate the qualitative changes. The performer can increase the pressure to produce something more than an assortment of musical objects. The movement of the material, its growth from the inchoate vibration at the beginning to the richer complex sonority by the end of bar 13, can be produced by emphasising at every given moment the distinct quality of the vibratory energy – a main control level to which the building of the note-gestures will be totally subjugated as secondary materials. Technically, the bowing speed needs to be very slow to achieve this: a faster bow delivery would make every note-gesture clearer but would be more likely to fail to maintain the required level of contact with the string for controlling the intensity of vibration. The technique is similar to that of a cinematic shot: the performer can increase the pressure of time in this passage by a careful monitoring of the perceptual qualities in the music by the use of the imagination.

If we accept that qualitative changes in the vibration are the real musical materials here, the note-materials in the introductory section acquire a unique function in the overall structure of the movement. At the beginning note-materials

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[265] John Richardson, *Braque*, London, 1961, p. 4; quoted in Isabelle Monod-Fontaine, 'The Master of Concrete Relationships', in John Golding, *Braque: The Late Works*, Yale University Press, New Haven, 1997, p. 15.

[266] Quoted in Dora Vallier, 'Braque, la peinture et nous. Propos de l'artiste recueillis par Dora Vallier', *Cahiers d'Art*, Paris, 29th Year, No. 1, 1954, (translated as *Georges Braque. Ten Works*, London, 1963; collected in Vallier, *L'Intérieur de l'Art: Entretiens avec Braque, Léger, Villon, Miró, Brancusi (1954-1960)*, Paris, 1982), p. 16; Vallier quoted in John Golding, 'The Late Paintings: An Introduction', *Braque: The Late Works*, p. 4.

are presented as independent gestures which only later formulate co-operative relationships in which vibratory energy can be brought forward. But these note-gestures repeat themselves throughout the piece (except the pizzicato gestures which disappear before the middle section), and turn out to be the only note-gestures the piece has. The early exposition of the 'vocabulary' of note-gestures in the introductory section therefore maps out the framework of sounds as soon as the piece starts. Their limited number and consistent employment increase the density of qualitative changes in the vibration in order for it to be perceived more clearly.

It follows from this that the rise and fall of pitch in the overall duration is governed by an increase and decrease of timbral energy, or rather, the rise and fall of the pitch is only an indication of the trajectory of the timbral energy. The remarkable point about the temporal structure in this music is that it does not give any indication of what this movement is about in any materialistic way. The appearance of Scelsi's music may be primitive and crude. But he builds up what one may call a movement image, a discourse of temporal qualities, from which powerful perceptual energy emerges.

Xnoybis: timbre and multiplicity of representation

The other important parameter for a successful delivery of Scelsi's music is timbral articulation itself. Here timbre is all important. Timbre is not just a special effect added to the note, but is the sound from which the note can be derived.

Timbre is what distinguishes sounds from notes. However, as we have seen in Chapter One, timbre is not a fixed property like pitch. The range between loud and soft varies according to the individual instrument and performer, as does the range between wide and narrow vibratos. Indications such as 'sul tasto' and 'sul ponticello' cannot specify the degree of the given quality with which the sound should be produced. Furthermore, the smaller the dimension of differences with which the structure is articulated, the finer the degrees of distinction become. In this way, performances of a musical work that consists only of a timbral variety within the sound inevitably vary according to the qualities of the sound-source.

Such variability may appear to endanger the identity of the composition, as the piece may sound significantly different from one performance to another. In a work like Scelsi's, where musical structure is detectable only in its temporal form,

acoustic variability may threaten to result in non-identity. However, one can consider that multiplicity of representation is in fact an integral part of the conceptual scheme of the work.

Looking at multiplicity of representation from the traditional point of performance practice first, one can say that most musical works maintain their identity through varied performances because there is always a set of common features involved in all their performances. These features are usually formal and harmonic structures, such as having an ABA form or being based on a particular harmonic scheme. Here the definitive nature of these elements allows the structure to take on an ideological function. As a result of this function, what is understood as a set of permanent properties becomes the identity of the work.

However, works such as *Xnoybis* do not present a sufficient number of permanent properties able to be shared between performances. For example, all three movements of *Xnoybis* – particularly the first and third – are similar in featuring a slowly rising drone. How can we identify individual movements without a large enough number of empirically referable distinguishing features being involved in performances? One may argue that the object in question cannot be perceived as a work (or a section/movement) any longer and that it becomes a type or genre. This teleological ambiguity is often seen in non-Western music; it is found not only in *Xnoybis* but also in many other works by Scelsi; one can also observe it in post-war Western music, such as in the conceptual or improvisatory compositions of the 1960s. These event-objects often possess features that are not empirically referable but referable by other means, such as stylistic, emotional, methodological. These features are perceived contextually. The manner of reference may be called extra-musical. By virtue of such context-sensitive but nevertheless perceivable features, music can exist as a musical work without having predominantly uniform features in its representations.

We also observe that the roles of musical structure and context-sensitive agents are reversed in Scelsi's work. In the practice of more traditional music, the context-sensitive agents are timbre, instrumentation, tempo, and many others that cannot be presented as 'notes'. But when a composer consciously sets out to reverse the area of multiplicity between the roles of structure and context-sensitive agents, the resulting music requires a totally different approach for its understanding.

It is worth remembering that Scelsi composed most of his works as improvisations.[267] He considered himself to be a 'mediator between two worlds', between this world and the world that possesses the creative being of sound. Enzo Restagno explains that in Scelsi

> We are far removed from the concept of sound architecture where single sounds are nothing more than construction materials. A quite different sensitivity and state of mind are needed for a composer to perceive the attraction of sound's creative being with any regularity; and a somewhat religious concept of music is required if such feelings are to transport us to regions far removed from even the most sublime aestheticism. As the sense for sound's creative being grows within a musician, the awareness of belonging to the historical tradition of Western music begins to recede. The very idea of composing is apprehended as a presumptuous act, as if one were fleeing the world in order to isolate oneself in an intellectualised dimension. The antithesis of this arrogance inherent in the architectural approach is to open oneself up to the mysterious, to recognize its immense depth and thereby develop a less clear-cut perception of one's own individuality.[268]

For Scelsi the 'work' exists in that other world and his compositions are in fact his performances, which aim to express the creative power of the sound in that particular world. The expressive content of the work is therefore found in that other world and through the attitude with which Scelsi ventures to extract the essence. If the creative being of sound is mobile, Scelsi's compositions ought to vary: not only from one composition to another but also from one performance to another of the same composition. Here the concept of musical composition itself becomes undermined as a result of questions concerning the presentation of music in time. The identity of the work lies in the imaginative capacity of the performer by which the energy of sound is captured.

It follows that the perceived sound properties can change according to the individual context of each representation, while the identity of the work remains, because its expressive identity does not depend on the acoustic changes involved, nor on our understanding of the musical work as an individual object. One could even say that multiplicity of representation is a peripheral alteration to the varying

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[267] See Frances-Marie Uitti, 'Preserving the Scelsi Improvisations', *Tempo*, Boosey and Hawkes, London, No. 194, 1995, pp. 12-14.

[268] Enzo Restagno, 'Giacinto Scelsi and the Sound Sphinxes', translated by M. Taylor. CD sleeve notes for *Giacinto Scelsi*, Salabert, Paris, 1990, p. 26.

context within which the work/sound exists. The work's identity is situated between that world of sound and the performer who obtains contact with it. This leads to the speculation that the imaginative capacity of the performer can have more immanence than the musical structure. Musical structure *per se* may still be recognised and remain relevant to the work's identity, but only as a margin to its variable content.

The lack of a suitable critique can be observed in the performance practice of his music as much as in its critical understanding. Indeed, many aspects of traditional technique are not required at all when performing his music. Nevertheless, the performer may be tempted to apply the same attitude to Scelsi's music as when performing the traditional repertoire, that one should aim to produce a performance which is faithful and accurate in relation to the score. This attitude betrays the by now familiar misapprehension that all performances of a work should represent the same structures, prioritising the score's representation of the work. Such an attempt will inevitably fail to represent the central expressiveness of his music.

Thus, in performing *Xnoybis*, it is helpful to remember that the movement of energy *is* the vital feature of the work. An acceptance of the variability suggests 'translating' the given timbral indications into a pragmatic perspective, and in doing so one sometimes has to depart from the score in order to maintain the qualitative energy of the sound.

For example, the *TAST.* indication from bar 13 can be executed with a *flautando* bowing as this would increase the clarity (lessen the risk of non-sounding) in the entry of the harmonic notes – which require a fair amount of lightness and speed in the bow to speak – in bar 14. It must be reminded that bar 14 represents not only a structurally significant point but also a perceptually important one. The categorical appearance of the note-gesture may be different from the indication, but playing the held D sharp on the second string in bar 13 *flautando* increases the perceptual significance of the harmonic notes' entry in bar 14. Such an execution may also involve some *rubato*: indeed the introductory section as a whole may require many *rubato* fluctuations, though this may increase the degree of variability particularly in respect to structure. *Rubato* may, indeed, upset the structures punctuated by the Golden Section principles. However, there is a clear difference between perceptual form and musical structure.

The musical structure in Scelsi may be constantly affected by varying timbre and become undetectable, but the perceptual form can be maintained in all its performances. Such perceptual form is achievable only by means of keeping the qualitative movement of sound at the core of its performance. Thus the identity of the work is always perceivable because nothing represents movement of energy better than fluidity of acoustic properties. The significance of his music is seen in the fact that the multiplicity of the structure is self-referential: we only need to listen to the sound's predisposition carefully.

The point is that changes in the perceptual form can result in the structural articulation, but not necessarily. Structural articulation, on the other hand, cannot successfully mould the perceptual form in *Xnoybis*. This is true with many compositions in general but perhaps more so in Scelsi's. It is the difference between construction and moulding, the ways in which actual experience is taken into account. It runs parallel to the interrelationship of time and movement, a problem about which Deleuze comments:

> Over several centuries, from the Greeks to Kant, a revolution took place in philosophy: the subordination of time to movement was reversed, time ceases to be the measurement of normal movement, it increasingly appears for itself and creates paradoxical movements. Time is out of joint: Hamlet's words signify that time is no longer subordinated to movement, but rather movement to time.[269]

Of the similar polarisation, speed and swiftness, Italo Calvino writes:

> The motor age has forced speed on us as a measurable quantity, the records of which are milestones in the history of the progress of both men and machines. But mental speed cannot be measured and does not allow comparisons or competitions; nor can it display its results in a historical perspective. Mental speed is valuable for its own sake, for the pleasure it gives to anyone who is sensitive to such a thing, and not for the practical use that can be made of it. A swift piece of reasoning is not necessarily better than a long-pondered one. Far from it. But it communicates something special that is derived simply from its very swiftness.[270]

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[269] Gilles Deleuze, *Cinema 2: The Time-Image*, op. cit., p. xi.

[270] Italo Calvino, *Six Memos for the Next Millennium*, translated by P. Creagh, Vintage, London, 1996, p. 45.

There may be a gap between perceptual form and abstract formal structure in *Xnoybis*. One should try to close the gap as much as possible, but complete identification between the two is not the priority here. One of the contributions Scelsi made in new music is that he presented the expressive significance of movement to the fore and reversed this relationship between movement and time. Furthermore, the magnitude of the attraction which Scelsi's work has for us perhaps lies in his single-minded determination to allow all kinds of perceptual qualities – including multiplicity – to take charge of our life experience.

Performance as a work of art

It takes a considerable amount of courage and imagination for performers to refer to the incidental sounds, rather than the notated elements, as the more vital elements of the work they play. Furthermore, it may shake their own musicianship from the ground up when they realise that the discernible elements are not meant to be the same in each performance. The ability to perceive the expressiveness of its transient energy is demanded of both the performer and the listener alike.

The fact that the music identifies itself with what is presented, rather than functioning as a fixed set of properties, isn't actually new at all. Such practices are found in many traditional musics from outside the West, as well as in European music of the periods preceding print culture. The fixation about the identity of a musical work in the West has lead us over the centuries to alter the notion of performance as well. We have grown to assume that performance is something that is separate from composition, that *exists* on a level independent from the notion of the musical work.

If there is a performance of, let's say, a Bruckner symphony in a concert programme, we know not only what musical work we will hear but what kind of performance style, sonority and emotional effect we are going to experience. There is a meta-performance in the listener's mind. The real performance will either level up to this meta-performance, fall short of it, or surpass it by achieving a quality that replaces it. In this way Western classical music has produced a conceptual system in which 'performance' (meta-performance) is a normative concept against which real performances are assessed.

This system is frequently found in a repertoire in which the concept of the musical work is relatively clear and the framework of variety of its possible performances is already established. Indeed, in such repertoire the term 'performance' is considered so conceptual an object that the term 'interpretation' often appears as a mediating act between the work and performance. This may be a very useful system in which to discuss all the mental activities that can go into performance. Without having some conceptual form of performance no real performance will achieve the expressive potential the act of performing has.

However, real performance is not a conceptual object like meta-performance. The advantage of having meta-performance cannot obliterate the fact that performance is an act, not an object. It seems there is a barrier that prevents us from distinguishing performance from meta-performance, thereby mistaking the former for a conceptual object too. When performance is discussed in musicology, we are often dealing with meta-performance: the act of speculation itself presupposes performance to be as conceptual as the notion of the musical work. In musicology as well as in the mind of a 'discerning listener', the meta-performance is often a synonym for what is described as the musical work. Or rather, the meta-performance is the ultimate concept of the musical work in performance. The relationship between the musical work and its meta-performance tends to be taken as polarising conceptual pillars in musicology. It appears that the more intellectual the discourse becomes the more heightened our inclination to see performance as an already developed concept: that is to say, the discourse can progress only upon taking the act of performing, the sensory experience of the work of art, for granted.

'Interpretation' is a term less used in new music. Its absence is often attributed to the over-specification in scores so that there isn't enough room to 'interpret'. Such 'interpretation', a process of bridging/adjusting the gap between the score and performance, presupposes the existence of meta-performance, a conceptual object that corresponds with the other conceptual object, the musical work as represented in the score. But there are cognitive circumstances that annihilate the distinction between interpretation and performance in new music, or rather negate the existence of such 'interpretation'.

Susan Sontag famously refutes the value of interpretative activities practiced in literature in her essay 'Against Interpretation'. Here she first defines the term 'interpretation' as exercised in works of art: it does not indicate an act of

understanding 'in the broadest sense in which Nietzsche says, "there are no facts, only interpretations"', but signifies 'a conscious act of the mind which illustrates a certain code, certain "rules" of interpretation'.[271] Then she goes on to explain the origin of this 'interpretation':

> Interpretation first appears in the culture of late classical antiquity, when power and credibility of myth had been broken by the "realistic" view of the world introduced by scientific enlightenment. Once the question that haunts post-mythic consciousness – that of the *seemliness* of religious symbols – had been asked, the ancient texts were, in their pristine form, no longer acceptable. Then interpretation was summoned, to reconcile the ancient texts to "modern" demands. . . . Interpretation thus presupposes a discrepancy between the clear meaning of the text and the demands of (later) readers. It seeks to resolve that discrepancy.... Interpretation is a radical strategy for conserving an old text, which is thought too precious to repudiate, by revamping it.[272]

'Interpretation' thus presupposes a distance between the conceptual object (such as the meta-performance of a musical work) and the object itself (such as the musical work). In other words, for the 'interpretation' to exist, there must be a historical or cultural gap to be filled in. What new music has less – if at all – is this historical and cultural distance between the two concepts of performance and musical work.[273] 'Interpretation' can be successful only when there is the *necessity* to fill in the distance. Without having provided this distance, an act of 'interpreting' a work of art can lead to simply repressing it. One cannot hypothesise such distance – an attempt 'to interpret' a new musical work can thus sometimes lead to a falsity of performance.

Do we ever have a meta-performance that comes with the experience of the work in new music? How do we discover what the ultimate performance of a new musical work is like, particularly when there aren't sufficient performances to

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[271] Susan Sontag, 'Against Interpretation' (1964), *Against Interpretation*, Vintage, London, 1994, p. 5.

[272] Ibid., p. 6.

[273] A new musical work does have 'performance' as its conceptual object, and it often creates a gap between this conceptual performance and the real one. This gap is well discussed, for example, concerning the performances of Brian Ferneyhough's music, where what he calls 'central text' is close to my category of meta-performance. See Richard Toop, 'Interview with Brian Ferneyhough (1983)', in Brian Ferneyhough, *Collected Writings*, edited by J. Boros and Richard Toop, Harwood Academic Publishers, The Netherlands, 1995, pp. 250-289, especially pp. 268-273. But the hypothetical performance is a conceptual object and does not have an experience as concrete performance. This fact weakens the potential effect of the gap it creates between the meta-performance and musical work on the real performances.

formulate the notion itself? The score and various other sources may tell us about it. The composer may have a strong idea about what the performance should be like. But the danger with the discourse of meta-performance – or with creating such a discourse – is that we may forget that performance as experience is an unwritten, open concept. In a repertoire such as new music, there is as yet no established performance practice and therefore *should* be very little notion about the form of possible performances. The concept of performance does not have sufficient definitions to become a meta-performance here. The conceptual definition of the musical work in performance is still to be determined, and the task of the performer is to identify the work first.[274]

The hazard for performers of new music is the assumption that there is already a meta-performance with which they can inform their own interpretation. They believe that a meta-performance of the given piece somehow exists somewhere, conceptually at least. This belief can often lead them to unknowingly borrowing the meta-performance style of other musical works and applying it to that of a new work. There are instances where the musical work clearly intends to borrow other meta-performance and meta-musical idioms in the composition. But the performance of such works also ultimately go through a process of formulating a new meta-performance of its own. The unconscious borrowing of a meta-performance style by the performer, on the other hand, clearly has a different consequence: that borrowing often lessens the direct investigation of the given materials and instead encourages their categorisation, thus diminishing creativity rather than stimulating it. Such simplification in the course of performance practice can reduce the act of performing to mere 'playing'.

It is easy to forget the unique situation surrounding new music, namely that every performance is a significant contribution towards the formation of the identity

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[274] The same argument applies to the standard repertoire and many musicians working with that repertoire still challenge this conceptual definition of the musical work in performance. However, in the present discussion the focus is given to the repetitive nature of performance that accelerates the formation of the performance as conceptual object. A considerable part of our cultural enjoyment with the standard repertoire is to confirm and sometimes increase the connection between reality and this meta-performance in the sense Georges Perec describes: 'I re-read the books I love and I love the books I re-read, and each time it is the same enjoyment, whether I re-read twenty pages, three chapters, or the whole book: an enjoyment of complicity, of collusion, or more especially, and in addition, of having in the end found kin again'. New music performers (and listeners) rarely have this 'complicity' with the work. From this point of view the performers of new music are more involved in determining the performance as conceptual object. Georges Perec, *W or The Memory of Childhood*, translated by D. Bellos, Collins Harvill, London, 1989, p. 143.

of the given musical work.[275] To interpret new music is to identify it, rather than to re-identify it. Because a performance informs more or less instantly the perceived concept of the work in new music, presenting a performance *is* presenting the work to a greater degree. 'Interpretation' as a gap-filling activity only lessens the potential for real interpretation, the act of identifying the work. The supposed lack of 'interpretation' in new music also points to the fact that performers are not sufficiently aware of their involvement in the process of producing what will be known as the musical work in performance – the eventual meta-performance that determines the identity of the work. There can be no room for a mental exercise of 'interpretation' here as there is no performance yet to be taken for granted: performance holds the key to determining what the musical work *is*. There seems a necessity to remind ourselves of the creative role performance has in new music, or in any other music. Not acknowledging that is to allow performers to exercise their power without responsibility.

In *Xnoybis*, we realise how much the performer has to do with the identification of the work. *Xnoybis* reminds us of our complacency in trying to 'interpret' the work and urges us to *experience* it. For the performer Scelsi prepares the ground for a particular kind of virtuosity, close to *virtú,* the term Machiavelli famously (and infamously) used in describing what can be understood as an energy as well as a mental capacity: an ability to comprehend reality in such a way as to enable the contextualisation of one's own visions, an ability not just to form a wish but also to act in such a way as to transform it into reality.[276]

If we are to recognise the importance of movement, the importance of experiencing, then we have to recognise that performance is a work of art. It follows that we have to find ways to integrate the artistic aspects unique to performance into musical discourse. Scelsi reintroduced the expressive power of sound to the context of new music, the power which gave rise to the existence of music. He achieved with his single vibrating tone the creative unity of composition and performance,

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[275] Here the term 'new music' largely refers to recently composed music, the creators of which are still alive or could have been expected to be still alive. However, the part of new music, that part often identified as 'modern music', which has already become repertoire and thus joined the canon of Western music, is not included in this discussion because such new music has its own performance practice distinct from the rest of new music.

[276] *Virtú* is considered as the most disputed term Machiavelli used, and there is 'a whole library of discussion'. See for example J. H. Whitfield's essay 'Big Words, Exact Meanings' in Niccolò Machiavelli, *The Prince*, translated and edited by R. M. Adams, second edition, Norton, New York, 1992, pp. 193-206.

and a celebration of our imagination and artistry. At the core of this achievement lies his mastery of musical timbre: Scelsi's example is only a pointer to the fundamental effect musical timbre has for any music as long as music continues to have a *meaningful existence* for us. It is thus our responsibility to investigate timbre's further potential in our musical discourse.

Appendix I

Quotations on Vibrato

The following quotations are given with a view to providing a variety of function and a sense of progression in the ways the technique has developed over the centuries.

Marin Mersenne, 1637:

> The tone of the violin is the most ravishing [when the players] sweeten it . . . by certain tremblings [here meaning vibrato] which delight the mind. . . . The verre cassé [here meaning vibrato] is not used so much now [on the lute] as it was in the past [partly in reaction] because the older ones used it almost all the time. But [it cannot be dispensed with and] must be used in moderation . . . the left hand must sing with great violence [the thumb being free of the neck].[277]

Thomas Mace, 1676:

> The *sting* [vibrato], is another very *Neat, and pritty Grace*; (But not *Modish* [on the lute] in *These Days*) . . . first strike your *Note*, and so soon as it is struck, *hold your Finger* (*but not too Hard*) *stopt upon the Place*, (letting your *Thumb loose*) and *wave your Hand* (*Exactly*) *downwards, and upwards, several Times, from the Nut, to the Bridge*; by which *Motion*, your *Finger will draw, or stretch the String a little upwards, and downwards, so*, as to make the Sound seem to *Swell*.[278]

Francesco Geminiani, 1751:

> Of the Close SHAKE . . . you must press the Finger strongly upon the String of the Instrument, and move the Wrist in and out slowly and equally. When it is long continued, swelling the sound by degrees, drawing the bow nearer to the bridge, and ending it very strong, it may express majesty, dignity, *etc.* But making it shorter, lower, and softer, it may express denote affliction, fear, *etc.*, and when it is made on short Notes, it only contributes to make their Sound more agreeable and for this Reason it should be made use of as often as possible.[279]

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[277] Marin Mersenne, *Harmonie Unverselle*, Paris, 1636-37; translated by R. E. Chapman, The Hague, 1957, Book II, section on Lute ornaments, p. 24 and p. 104; cited in Robert Donnington, *The Interpretation of Early Music*, op. cit., p. 232.

[278] Thomas Mace, *Musick's Monument*, London, 1676, p. 109; cited in Robert Donnington, *The Interpretation of Early Music*, op. cit., p. 233; also cited in David D. Boyden, *The History of Violin Playing from its Origins to 1761*, Oxford University Press, Oxford, 1990, p. 288.

[279] Francesco Geminiani, *Art of Playing on the Violin*, London, 1751; facsimile edition introduced by D. Boyden, London, 1952, p. 81.

Leopold Mozart, 1756:

> The tremolo [i.e. vibrato] is an ornamentation which arises from Nature herself . . . if we strike a slack string or a bell sharply, we hear after the stroke a certain wave-like undulation. . . . Take pains to imitate this natural quivering on the violin . . . one makes a small movement with the whole hand . . . forward toward the bridge and backward toward the scroll . . . Now because the tremolo [i.e. vibrato] is not purely on one note but sounds undulating, so would it be an error if every note were played with the tremolo. There are performers who tremble consistently on each note without exception as if they had the palsy. . . there is also a slow, an increasing, and a rapid oscillation.[280]

Giuseppe Tartini, 1761:

> This ornament [the vibrato] is entirely excluded from the *messa di voce* [swelling and diminishing the sound] in which one ought to imitate perfectly not only the human voice but the very nature itself of perfect intonation to a mathematical point, that is to say, that the intonation of the note in the *messa di voce* ought not to be altered at all as it would be in the vibrato or undulation of the voice, in which the intonation [pitch] is never at a fixed point but is slightly higher or lower [than notated pitch], although imperceptibly.[281]

Louis Spohr, 1832:

> When the singer with passionate emotion gives forth his voice to its fullest power, a certain tremulous effect is audible, resembling the vibrations of a powerfully-struck bell. This, like many other peculiarities of the human voice, may be closely imitated on the violin. It consists in the wavering of a stopped note, which sounds alternately a little above and a little below its just pitch, and is produced by a trembling motion of the left hand, in the direction from nut to bridge. This movement, however, should be very slight, so that the deviation from the true note may not offend the ear. . . . in modern compositions its employment is left to the player's own judgment. He must beware of introducing it too often, or in unsuitable places. It is most called for in passages of a tender or impassioned character, or for giving intensity to the powerful accentuation of notes marked *sforzando*. It gives, too, more force and expression to long sustained notes. Where such occur upon a *crescendo* from *p* to *f*, an excellent effect is produced by commencing the tremolo [i.e. vibrato] slowly and increasing the rapidity of the vibration as the tone gathers strength. The tremolo [vibrato] in the reverse order, upon a *diminuendo*, is also very effective. . . . The quick tremolo [vibrato] is marked

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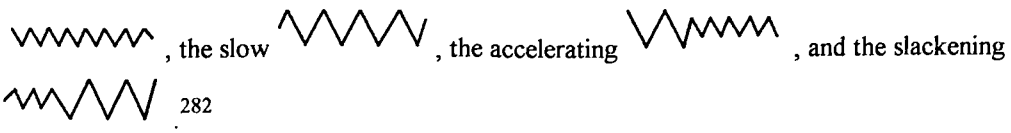
[280] Leopold Mozart, *Violinschule*, Augusburg, 1756; translated by E. Knocker, second edition, Oxford university Press, Oxford, 1947, pp. 203-203.

[281] Giuseppe Tartini, *Traité des Agrémens de la Musique*, edited by E. R. Jacobi, Celle and New York, 1961. Cited in David D Boyden, *The History of Violin Playing from its Origins to 1761*, op. cit., p. 389.



[282]

Luis Alonso, c. 1880:

> The vibrato is a major thing for a virtuoso. There are several vibratos: finger vibrato, wrist vibrato (or rather a sort of regular rocking of the hand), nervy vibrato [*vibrato nerveux*] (which comes from the left arm), vibrato by attraction or sympathy, and bow vibrato. The first is made by stopping the string with a finger while at the same time making the imitation of a trill with a higher finger but without this latter finger touching the string; this primitive vibrato is no longer used, only Italian players still do it. The wrist vibrato is normally too slow. It produces a kind of quavering resembling that of street singers. It should be avoided, for it quickly tires the audience. – The arm vibrato is insufferable, it is a nervy, stiff vibrato, it is comparable to a counterfeit chromatic trill, in a large hall it would be difficult to pick out the note on which one vibrates, it tires your hearing, and when the violinist plays in high positions and especially double stops, it is with pleasure that one sees the end of the piece approaching. The vibrato by sympathy or attraction [par sympathie ou attraction] is soft, pearl-like, superb, but one may only use it where one finds a note doubled by an open string or on a harmonic note which makes the octave. The bow vibrato is very elegant and is little used, for one hardly hears it, but it produces its visual effect, its elegance; it is a kind of serpentine slur [*une espèce de coulé, serpenté*].[283]

Siegfried Eberhard, 1910:

> First of all the author rightly states that the tone, more than anything else, takes hold of the listener and keeps him under its spell. That is precisely what I would again emphasize here, namely: Sound, particularly beautiful sound, is the most important factor of the art of playing the violin. All players strive for the beautiful tone [meaning the tone with vibrato]. Perhaps more or less conscientiously, each one endeavors to make his technic "sound." The beautiful sound, the so-called fine, soulful tone – that is the essential characteristic of the art of delivery.
>
> Now how does the matter stand between the soul and tone? Is the beautiful tone something which must be sought "deep in the soul"? What creates individuality of tone? my answer is: The tone is beautiful when correctly produced: it is not an expression of the soul.

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[282] Louis Spohr, *Violinschule*, Kassel,1832; translated, revised and edited by H. Holmes, *Spohr's Violin School*, Booscy, London, p. 163.

[283] Luis Alonso, *Le Virtuose moderne*, Paris, c. 1880; cited in Clive Brown, *Classical and Romantic Performance Practice 1750-1900*, op. cit., p. 536.

. . . the playing of different violinists is not distinguishable when confined to the open strings. The individual characteristics of different artists are also not recognizable as long as the fingers are held passive upon the strings. The difference in playing only becomes apparent when the vibrato is employed.[284]

Leopold Auer, 1921:

The purpose of the vibrato, the wavering effect of tone secured by rapid oscillation of a finger on the string which it stops, is to lend more expressive quality to a musical phrase, and even to a single note of a phrase. . . . the vibrato is primarily a means used to heighten effect, to embellish and beautify a singing passage of tone. . . . some of them [the performers] find the vibrato a very convenient device for hiding bad intonation or bad tone production. But such an artifice is worse than useless. . . . But the other class of violinists who habitually make use of the device – those who are convinced that an eternal vibrato is the secret of soulful playing, of piquancy in performance – are pitifully misguided in their belief. . . . No, the vibrato is an effect, an embellishment; it can lend a touch of divine pathos to the climax of a phrase or the course of a passage, but only if the player has cultivated a delicate sense of proportion in the use of it. . . . remember that only the most sparing use of the vibrato is desirable; the too generous employment of the device defeats the purpose for which you use it.[285]

Carl Flesch, 1924:

. . . the duty of the left hand, besides the most exact verification of the tonal pitch, consists in an unconscious merging of the tone with psychic powers slumbering deep within our subconsciousness. The result makes itself heard in the so-called *vibrato*. This "vibrating" of the left hand cannot be indicated by unmistakable signs but, according to its character, animation and duration, must be left to the violinist's personality. That the player's individuality is most decidedly expressed in the *quality of tone* peculiar to him and to him alone, would be hard to deny. . . . in general a more rapid vibrato should be preferable to a slower one, because in the former the deviation from the original tone is much less, and this makes the tone sound firmer and steadier. . . . the vibrato should never be used as a matter of habit, but only as the consequence of a heightened need of expression, and that this need, for its part, should be grounded in the musical content of the composition to be presented and interpreted. The vibrato which from the artistic point of view may be termed ideal, is one *differentiated* in the highest possible degree, one which, owing to its perfected mechanism, is

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[284] Siegfried Eberhardt, *Violin Vibrato*, Dresden, 1910; translated by M. Chaffee, Carl Fischer, New York, 1944, pp. 5-6 and p. 14.

[285] Leopold Auer, *Violin Playing As I Teach It*, New York, 1921; reprint, Dover, New York, 1980, pp. 22-24.

able to traverse a gamut of emotions progressing from the softest, well-nigh inaudible, to the most passionate, overwhelming oscillations.[286]

Ivan Galamian, 1962:

INTONATION OF THE VIBRATO. It is important that the vibrato always go to the flatted side of the pitch. The ear catches for more readily the highest pitch sounded, and a vibrato that goes as much above pitch as below makes the general intonation sound too sharp. . . .

DIRECTION OF THE VIBRATO MOTION. The vibrato motion does not normally occur exactly parallel to the length of the string, since this would deprive the vibrato of much of its ease as well as its range of motion. Rather, it directs itself across the string at an acute angle to the string's length.

SPEED OF THE VIBRATO. In general the vibrato may be speeded up by the simple device of reducing its width. The less distance the hand has to cover, the more vibrato cycles it can negotiate per beat. . . .

CONTINUITY OF THE VIBRATO. There are players who have the bad habit of starting the vibrato after the note has already sounded and an appreciable length of bow has been expended upon it. This style of playing may have its place occasionally as a color factor, but it should not degenerate into a mannerism that is applied to every single note. . . .[287]

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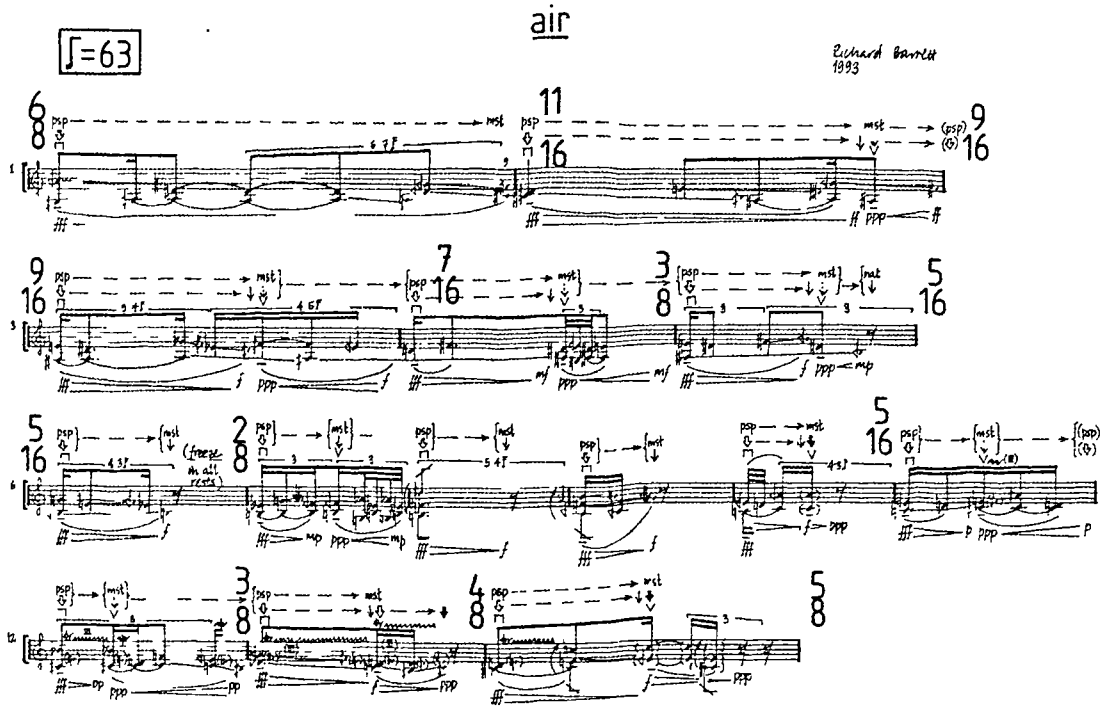
[286] Carl Flesch, *The Art of Violin Playing*, Carl Fischer, New York, 1924; revised edition, Carl Fischer, New York, 1939, Book I, pp. 35-40.

[287] Ivan Galamian, *Principles of Violin Playing and Teaching*, New Jersey, 1962; second edition, Prentice-Hall, New Jersey, 1985, pp. 42-43.

Appendix II

Richard Barrett: *air* – study for violin (1993)[288]



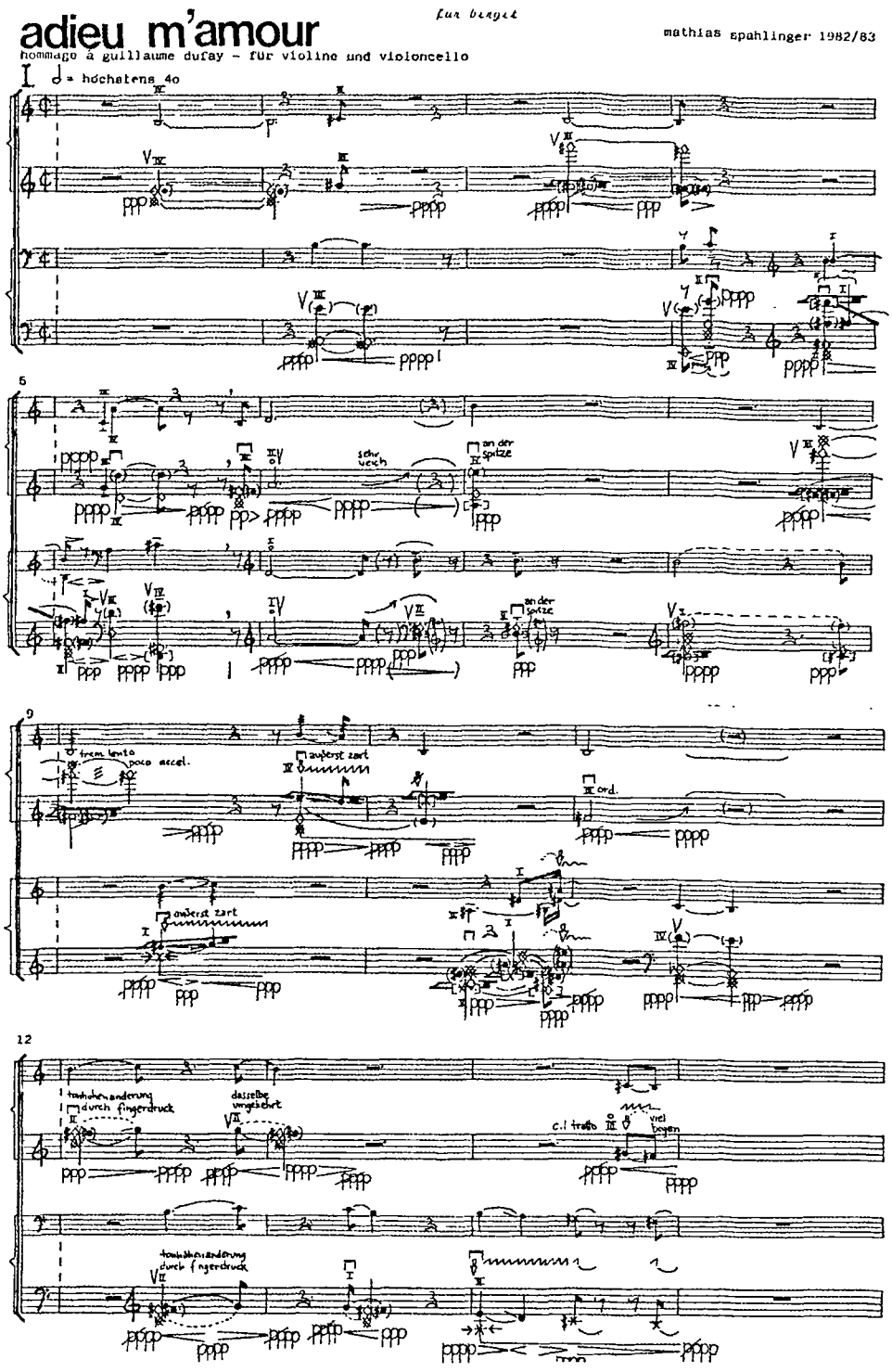
Barrett Air *bars 1-14*

Below are the sections from the composer's performance notes, which are considered relevant to the discussion:

> pst, mst, psp, msp indicate poco & molto sul tasto, and poco & molto sul ponticello respectively (all cancelled by nat).
>
> ⇣ ↓ ⇩ ⬇ indicate degrees of bow pressure (and the associated variations in the *speed* at which the bow is drawn across the string): weak (*flautando*), "normal", exaggerated (producing distortion of a discernible pitch) and pitchless scraping, respectively. In the last case, "pitches" are shown in brackets to indicate fingering, but will not be heard.
>
> ◇ ◆ ◢ indicate degrees of left-hand finger-pressure: "harmonic", intermediate and "normal" respectively.

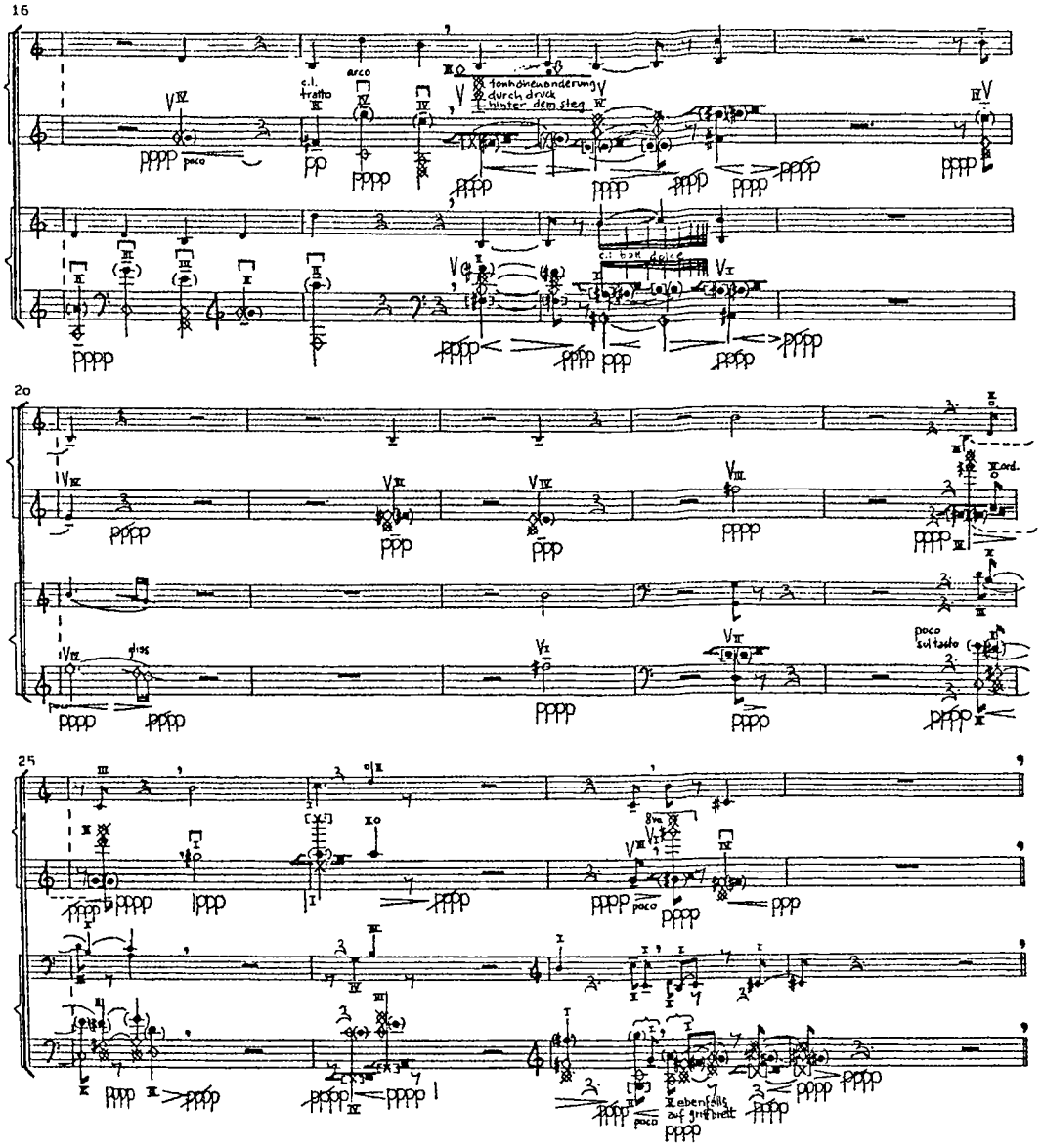
[288] Both the musical example and performance notes are extracted from Richard Barrett, *air* for solo violin, United Music Publishers, London, 1994.

Mathias Spahlinger: *adieu m'amour* for violin and cello (1983)[289]



Spahlinger adieu m'amour *first movement (page 1)*

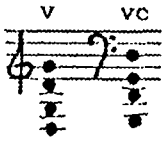
[289] Both the musical example and performance notes are cited from Mathias Spahlinger, *adieu m'amour: hommage to Guillaume Dufay* for violin and cello, Peer Musikverlag, Hamburg, 1983. The translation of the text is by the author of this thesis.



Spahlinger adieu m'amour *first movement (page 2)*

Below is a selection from the performance notes given by the composer, listing only those that are considered prominently relevant in this movement.

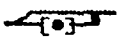
Scordatura :



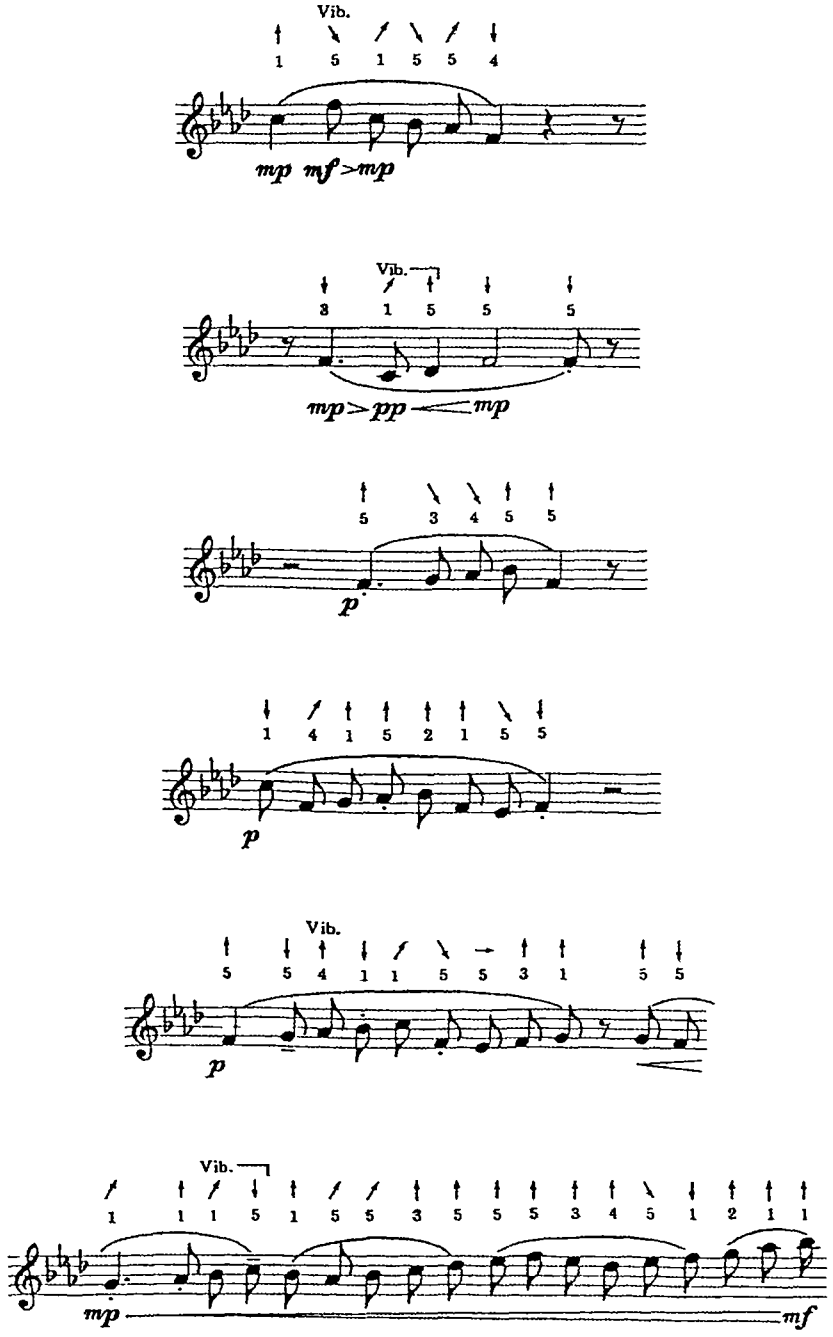
Signs:

X	Approximate pitch position. The bigger the X, the wider the pitch range of the note
[•]	Fingered position (which is not the same as the resulting pitch position)
(•)	Resulting pitch position (which is not the same as the fingered position)
◊	Position to be pressed down with a light pressure (*flageolet*)

These signs can be used in combination:

	Specified string and resulting pitch Position of a lightly pressed finger Position of a firmly pressed finger
X+◊ = ⊠	Lightly pressed approximate finger position
	This technique is based on the *flageolet* technique that allows particular harmonic overtones according to the interrelationships of stopped points on the string. The position of the bow plays a crucial part in delivering the resulting pitch described as (•): when the ◊ and (•) are at the same pitch position the bow should be around the halfway between the upper (lightly pressed) finger and the bridge, when the (•) is an octave above the ◊ the bow should be at a quarter of the length between the upper finger and the bridge away from the bridge's end, etc.
	Specified bowing position. Can be below the left hand positions (bowing between the fingers and the nut).
	Over pressure of the bow
	Over pressure combined with a juddering effect. The regular repercussive vibration of the slack string should be maintained throughout.

John Cage: *Eight Whiskus* (1985)[290]



Cage Whiskus *first piece*

[290] Both the musical example and performance notes are cited from John Cage, *Eight Whiskus - violin solos for Malcolm Goldstein*, Henmar Press, New York, 1985.

Relevant parts from the 'Performance Note':

These pieces follow songs having the same title. The title derives from a poem by Chris Mann (*whistling is did*) which was used as a source to make eight mesostic "kus" (*hai-kus*). All the nuances of articulation, bow position and pressure are to be realized within a *legato* bowing as indicated by phrase markings. To be played *non vibrato*, except where Vib. is indicated.

• spiccato – staccato

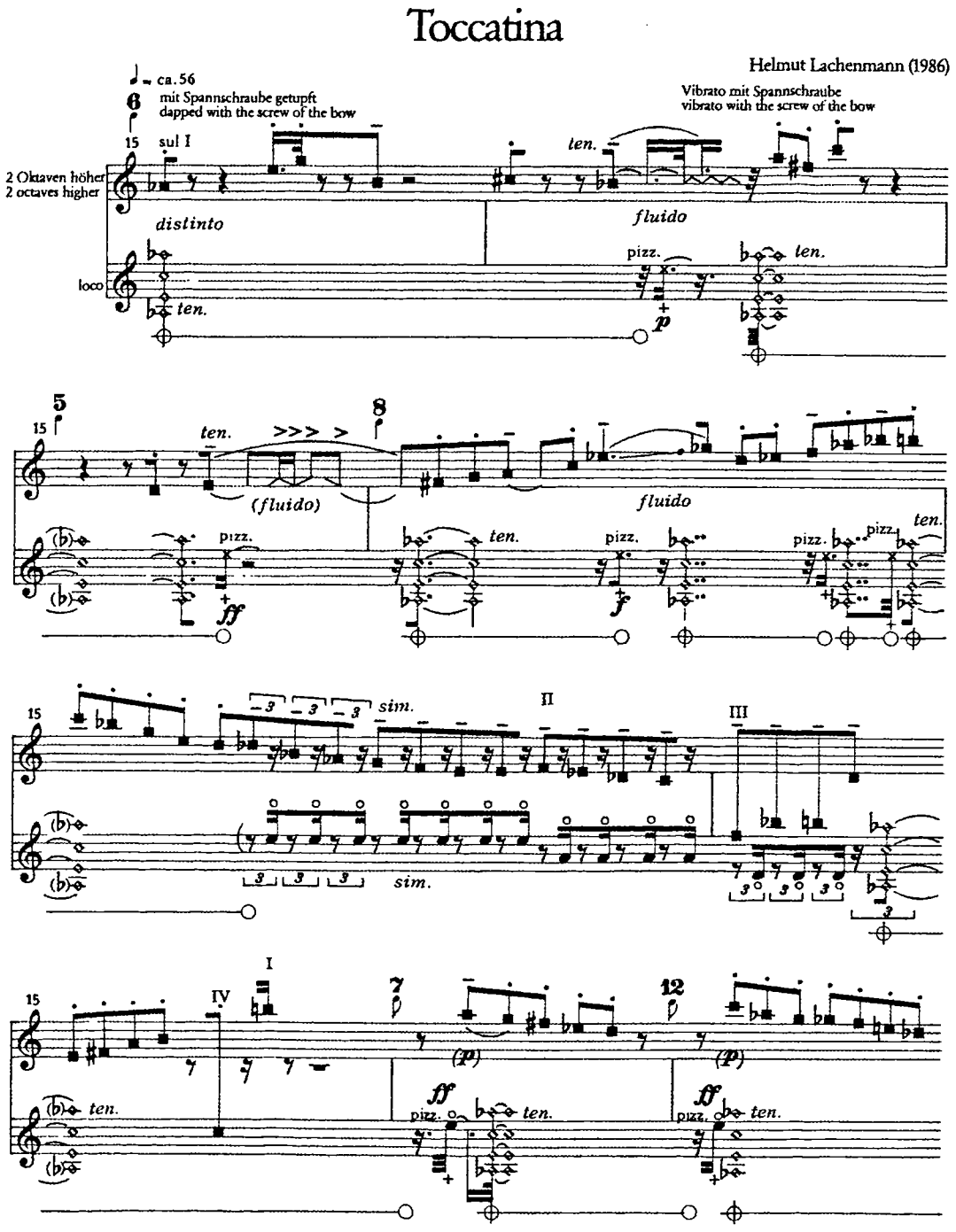
Bow pressures (1 to 5) are *flautando* to sustained *martellato* (or *marcato*).

Bow positions are ↑ on the bridge, → *ordinario* and ↓ *sul tasto* with ↗ and ↘ intermediate positions. Both ↑ and ↓ should be extreme.

CLB is *col legno battuto*, CLT is *col legno tratto*.

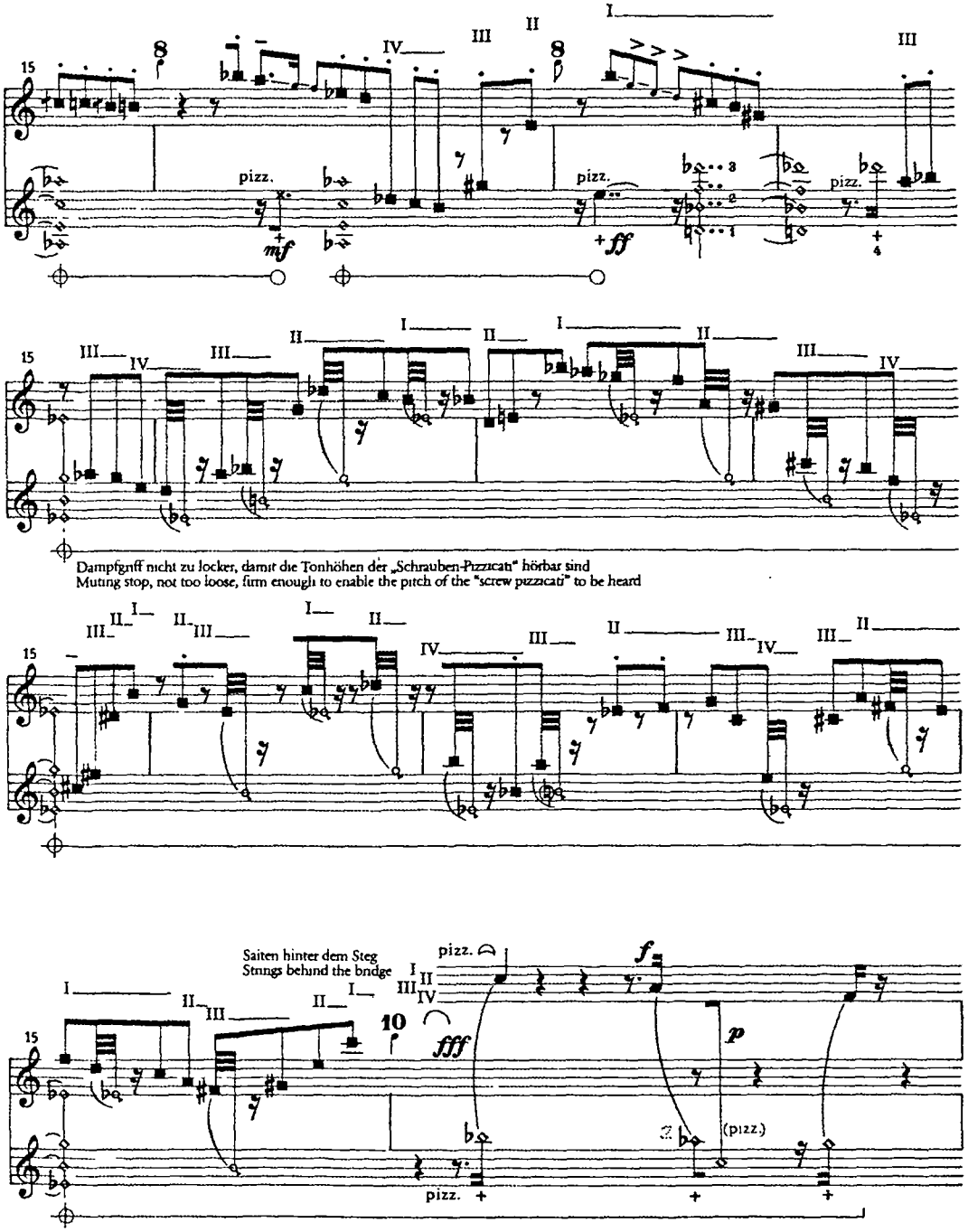
Seeming paradoxes, e.g. 5 and *p* together should be resolved by using a slower bow speed so that the sound though heavy into the string is *p*.

Helmut Lachenmann: *Toccatina* for solo violin (1968)[291]

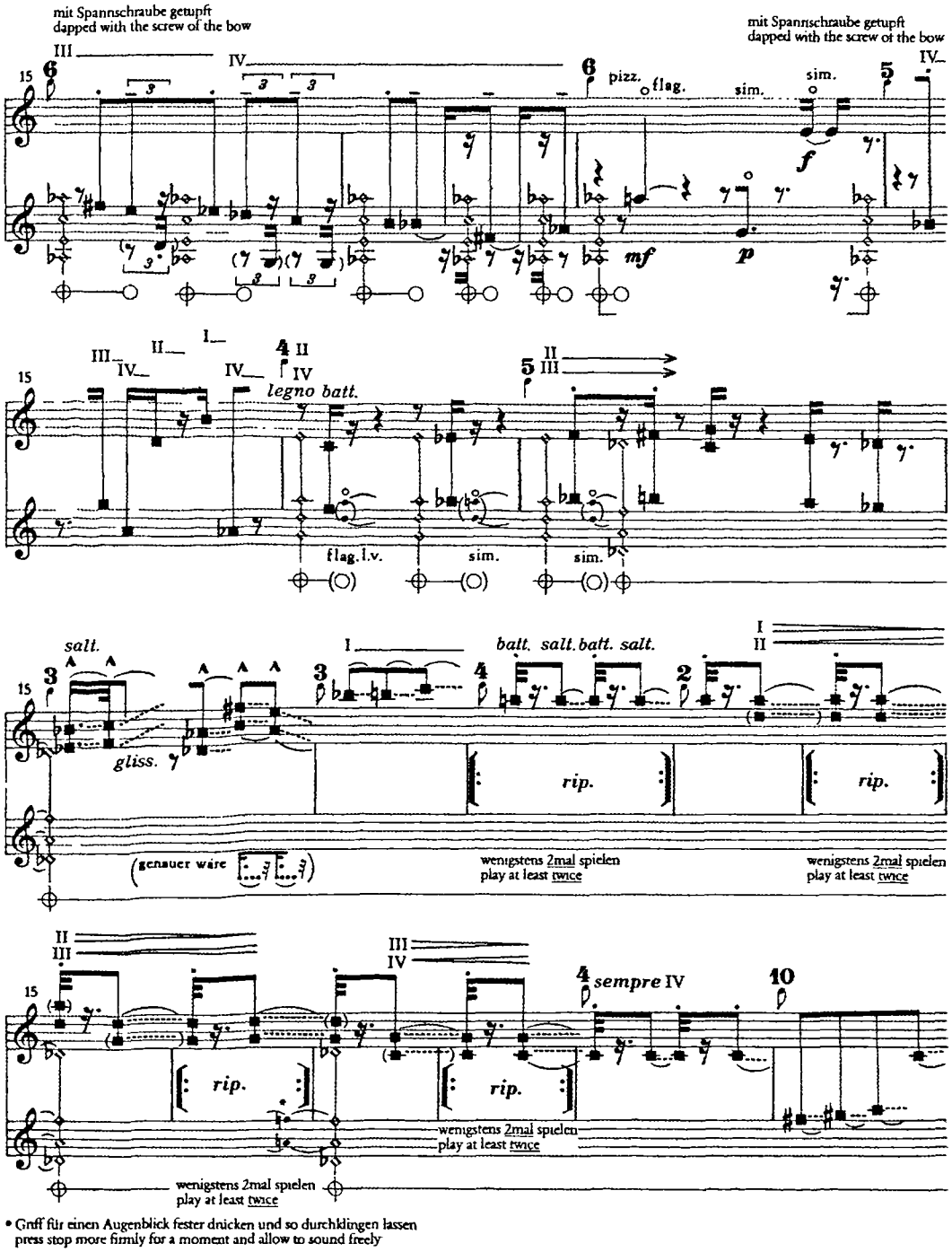


Lachenmann Toccatina – *page 1*

[291] Both the performance notes and music are cited from Helmut Lachenmann, *Toccatina* for solo violin, in *Pro Musica Nova – Studies for Playing Contemporary Music*, edited by I. Ozim, Breitkopf & Härtel, Wiesbaden, 1986, pp. 32-35 (music), English Appendix p. 5 (notes).

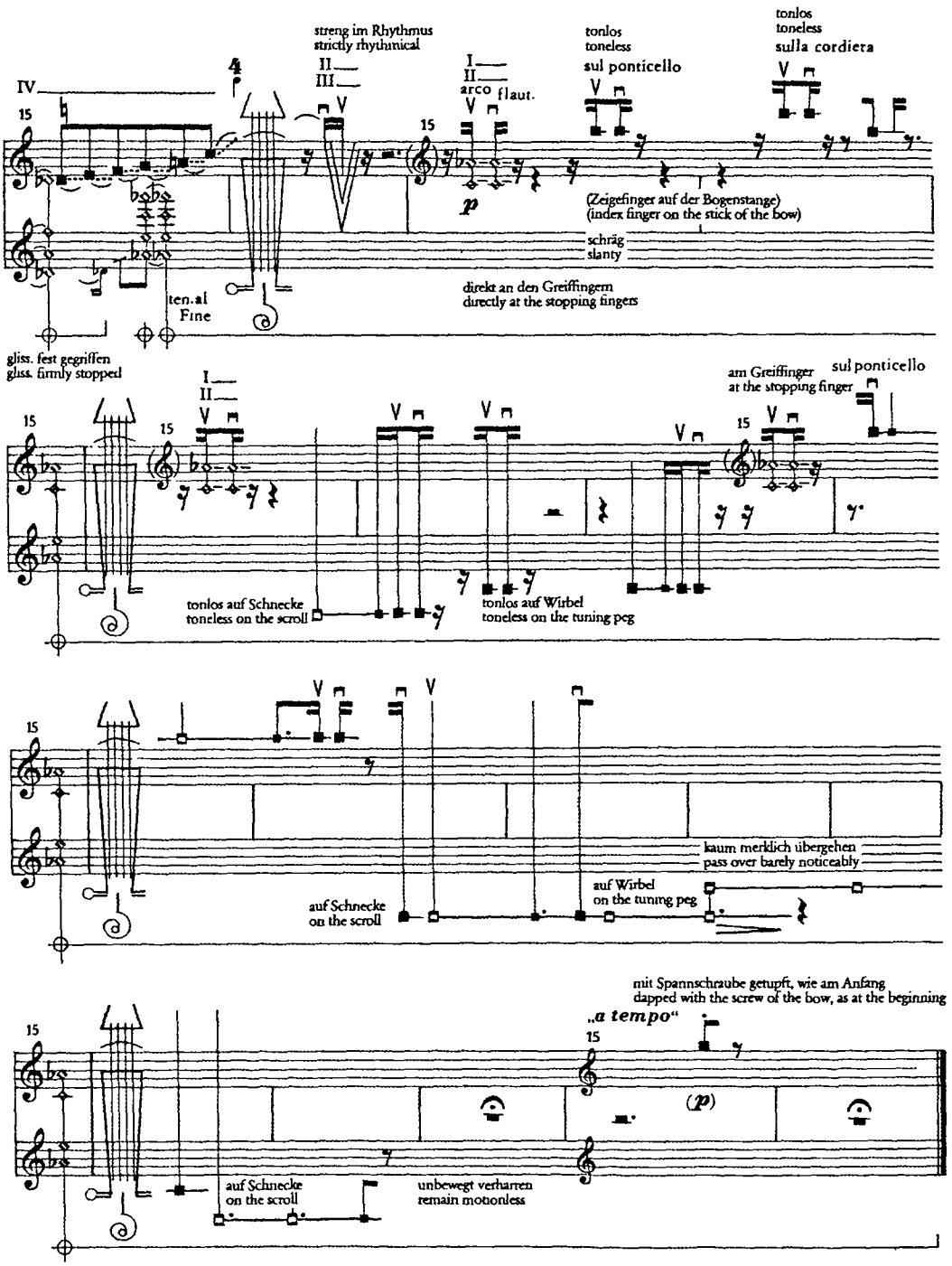


Lachenmann Toccatina – *page 2*



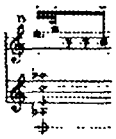
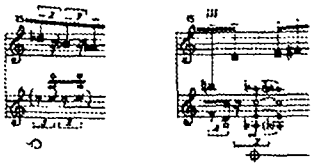
• Griff für einen Augenblick fester drücken und so durchklingen lassen
press stop more firmly for a moment and allow to sound freely

Lachenmann Toccatina – *page 3*



Lachenmann Toccatina – *page 4*

The following are a selection from the composer's notes, with entries that are particularly relevant in this discussion.

	Sound two octaves higher
	Notes with their tails pointing upwards : to be performed with the right hand
	Notes with their tails pointing downwards: to be performed with the left hand
	"*Dämpfzeichen*" – "muting sign": the string(s) should be prevented from vibrating by placing the fingers lightly on it (them). In most cases, all four strings are muted in this way, even those which are not actually being played on, thus preventing every vestige of resonance.
	Although the exact stopping position of the muting fingers on the fingerboard is not stipulated, it is nevertheless indicated by an open diamond-shaped note as being either a favourable or even essential position in relation to the other sounds that are to be produced.
	The open circle means that the muting is to be released, i.e. the fingers are to be removed from the strings.
	"*Tupfer mit Spannschraube*" – "dabbing with the screw of the bow": this is performed holding the bow in a vertical position and dabbing the string indicated with the screw of the bow from above, either staccato or tenuto. The pitch indicated shows the approximate place where the string is to be dabbed (this should be followed as accurately as possible). This is the place where the string would be stopped by the left hand in normal playing. These notes are only audible when the string is "suffocated" (or "throttled") by the muting stop.  [In reference to the above passages that have 'counter-parts' such as first page, third system, second group of quavers onward:] the precondition for the production of the sounds described is that the screw of the bow is not applied in a staccato fashion but rests firmly on the string. As soon as it is lifted from the string, the open string itself will sound. When an effect of this kind is intended the resulting open string sounds are indicated in brackets (tails pointing upwards). In all other places the open string must not be allowed to sound and the muting stop described above must be applied in good time.

Appendix III

Scelsi: *Xnoybis* for solo violin (1964) – first movement[292]

Performance notes:

(4+) (4–)	Respectively quarter tone higher and lower than the written note
(g)	Return to normal intonation
	Wide vibrato, half-way between ordinary vibrato and trill. Without this indication, play non-vibrato
tast.	On the fingerboard
pont.	Near the bridge
nat.	Normal position
flaut.	Flautando

The score contains some errors:

- From bar 63 to 65 the lowest stave must represent the fourth string as the note F is lower than the open third string and the harmonic sign on the note reinforces this view as the first harmonic note of the open fourth string. This also implies that the carried over note on the second stave must become transferred to the third string in order to make the double stopping possible with the lower harmonic F on the fourth string. Therefore the notes in bar 66 are in fact carried over from the last crotchet of bar 65.
- The combination of notes in first and third staves in bars 74 and 75 cannot be executed on the first and third strings as indicated, because this involves skipping over the second string while double-stopping. The options are either playing the note F on the third stave on the second string or playing the E-quarter-sharps on the top stave on the second string. However, the Fs on the lowest stave indicates that this line on the fourth stave can only be played on

[292] Both the musical example and performance notes are cited from Giacinto Scelsi, *Xnoybis* for solo violin, Salabert, Paris, 1985.

the fourth string (as it would be too low for the third string) and suggests that the top line (the notes E) must be played on the second string.

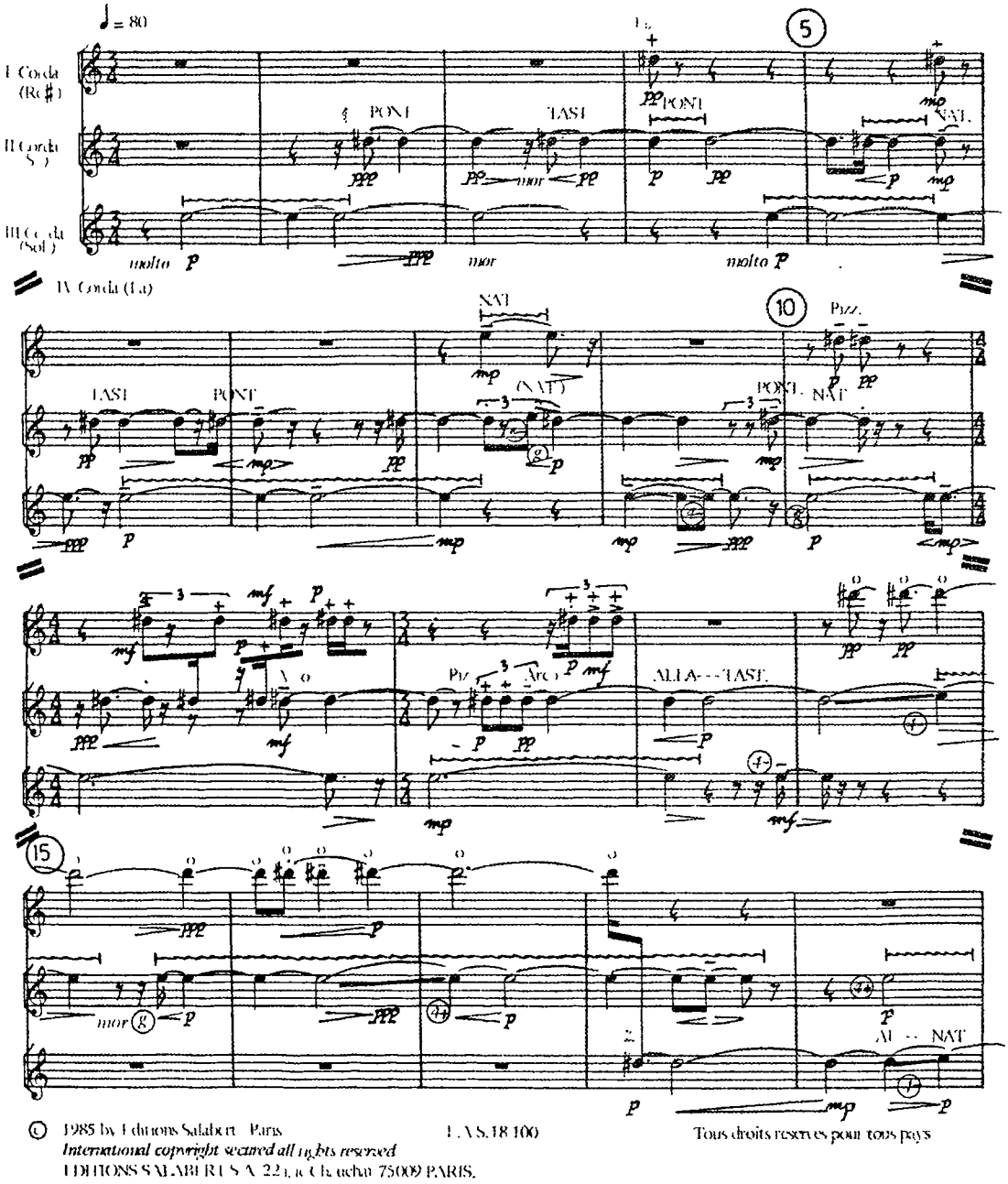
The signs indicating the vertical positioning of the bow (*PONT.*, *TAST.*, *NAT.*) apply, theoretically, only to the strings to which the signs are appended. In practice this can be achieved by changing the angle of the bow to allow the bow contact to vary between the strings. The effect is also greatly helped by adjusting the bow pressure, particularly for achieving the *sul tasto* timbre.

XNOYBIS

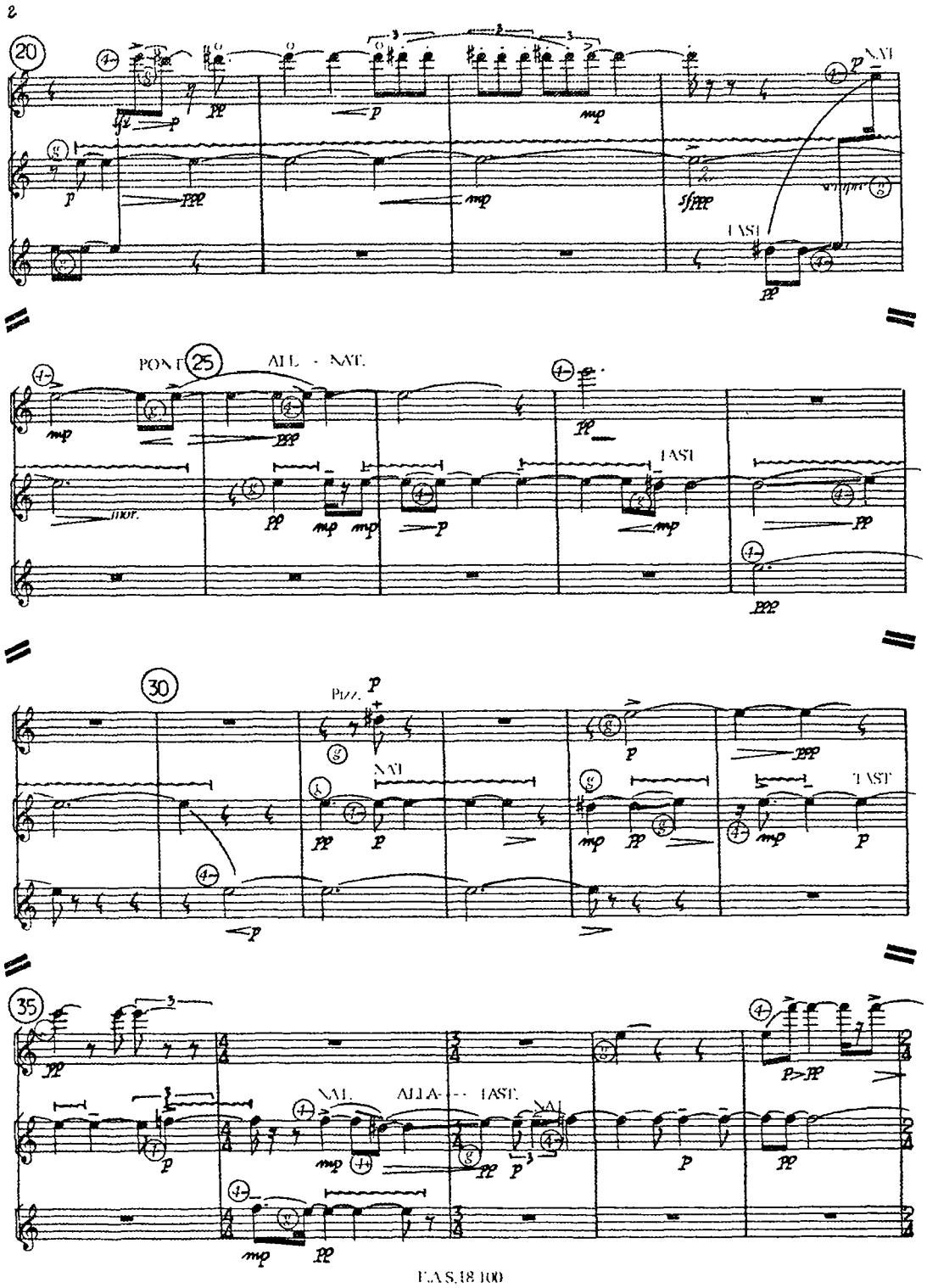
PER VIOLINO SOLO

I

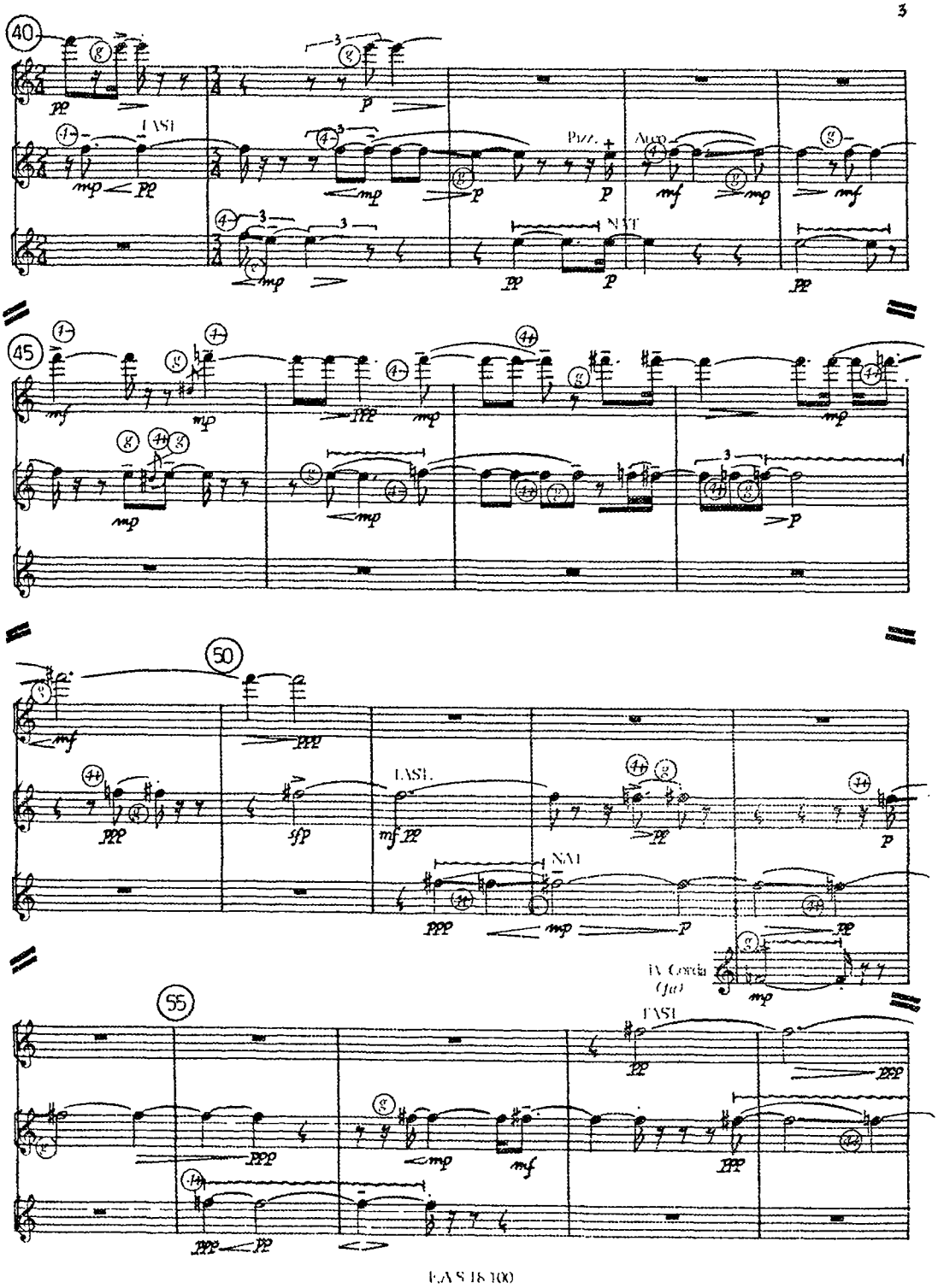
G SCELSI



Scelsi Xnoybis – *page 1*

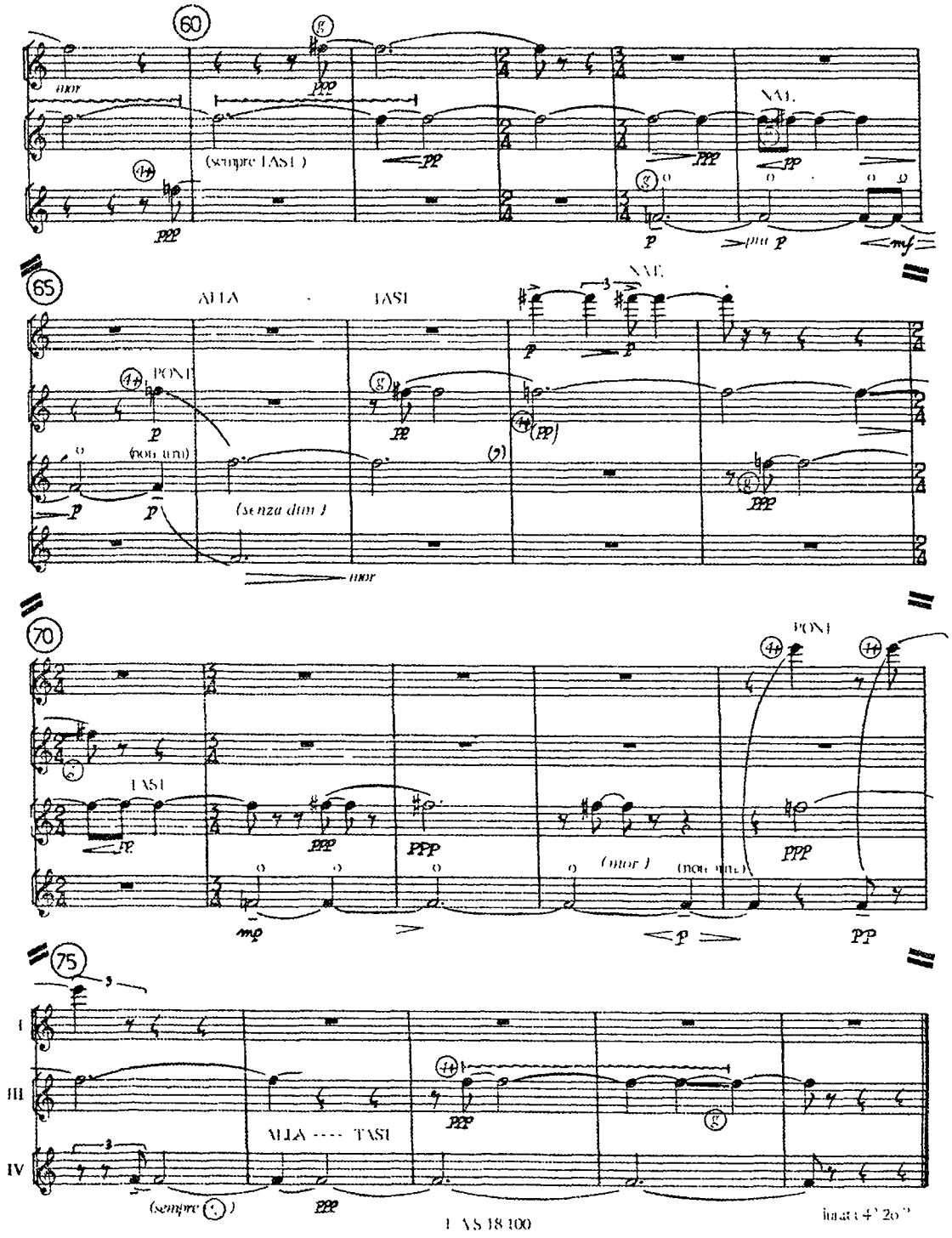


Scelsi Xnoybis *page 2*



EAS 18100

Scelsi Xnoybis – *page 3*



Scelsi Xnoybis – *page 4*

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