Techniques and Terminology for the Analysis of Electroacoustic Music and More

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Abstract

The author will illustrate his personal proposal of analytical steps to follow in carrying out the analysis of an electro-acoustic piece, in the complete conviction that the techniques and terminology involved in the analysis of electroacoustic music can be applied to any type of music. First of all, we will focus on the meaning of the word "Analysis", going on to consider together the various stages in the process of analysis, beginning with historical and aesthetic framework. We will then consider the aims and methods of construction of a score of the sound text and the operative procedures to be implemented in the process of creating a score: description of the sound objects, their behavior, the links between the sound sources, and the spatial qualities of the piece. Before arriving at the conclusions, further types of listening will be taken into consideration, correlated to a summary macro-score and to observation of sonograms. Finally, the analyzed work will be placed in Emmerson's Grid. The presentation of this 'vademecum under construction' will be accompanied by a hypertext glossary of the technical terms used therein.

1. What is analysis?

Analysis, from the Greek word *ana-luo* (to unloose), is a method of study based on breaking down something that appears to be a single unit into its constituent parts (Coletti, 2003). There are several types of analysis (Sabatini, 2003):

- ✓ Grammatical analysis: definition of the morphological value of the words making up a sentence
- ✓ Logical analysis: breakdown of a sentence into its constituent parts, defining their syntactic function
- ✓ Sentence analysis: breakdown of a sentence into phrases, identifying their syntactic function
- ✓ Chemical analysis: determination of the nature and percentage of components of a substance or blend of substances
- ✓ Market analysis: survey of the features of a product in order to come up with strategies for selling it

Analysis of music (whether electroacoustic or not) pretty much sums up all these definitions, for it is at the same time a method of study, a possible definition of sound in terms of its morphology and syntactic function, all in order to prepare an analytic text for compositional purposes.

2. Historic and aesthetic framework

Let us go on the first step in preparation of the analysis: historic and aesthetic framework.

2.1. Basic information on the work

First of all, we prepare a page reporting basic information on the work, in order to acquire initial items of information of use for determining its historic and aesthetic framework (Zattra, 2011). The points in the list appearing below may be appropriately adapted, integrated or modified on the basis of the particular features of the work being analysed:

- ✓ Composer
- ✓ Title
- ✓ Duration
- ✓ Time at which it was written
- ✓ Performers required
- ✓ Composer's dedication, if any
- ✓ Software and hardware employed
- ✓ Features of the diffusion of the piece in space (nature of the tracks, spatial qualities and diffusion in the performance environment)
- ✓ First performance
- ✓ Commission
- ✓ Musical assistant
- ✓ Production assistant
- ✓ Soloist, if any
- ✓ Ensemble designated for performance
- ✓ Conductor of the ensemble
- ✓ Publisher
- ✓ Discography (recording house)
- ✓ Acknowledgements
- ✓ Version analyzed
- ✓ Any notes (additional observations)

2.2. Composer's biography

Clearly in relation to works which, though synthetically identified in what is essentially an introductory paragraph, reflect, possibly (or hopefully) in sub-groups, the composer's "(con)temporary" aesthetic. Historical and political context must also be taken into account.

2.3. Composer's aesthetic

The principal aesthetic of the composer, its evolution over the years, and any radical changes in trends, which can probably be subdivided into periods of time. List the works associated with each aesthetic period in the composer's career, wherever possible providing context and explicitly providing examples of fragments of the compositions.

2.4. Studio in which the work was performed

Where was the work performed? For what reason, and/or with what intentions?

2.5. Technological equipment available to the composer

What technological equipment was available to the composer? (historic or modern instruments, oscillators, tapes, computer…) What are the benefits and objective difficulties associated with this equipment? And what times and costs are associated with this equipment (as compared to the possibilities available to us today)?

2.6. Performance history

When was the work in question first performed? On what occasion? In what environment or context? What was the audience's reaction? What evolution (or involution) did the work obtain in subsequent performances, and which ones were the most important, and why?

2.7. Versions of the work

How many and which versions of the work exist (in terms of orchestration, spatialization, recordings, support, instrumental and/or concrete performers, where present)? What are their dates? What were the reasons (aesthetic, political, "practical") that led the composer, or the person acting on the composer's behalf, to make any changes to the composition? Which version is most effective, and why?

2.8. Predominant historic aesthetic

What is the predominant historic aesthetic in the chronological and geographical context of the work, and, above all, how does it relate (or fail to relate) to them?

2.9. Other aesthetics present at the same time in history

What other aesthetic trends existed at the time the work was written? Does it contrast with them or oppose them, or is it similar to them? Is the same predominant aesthetic present, perhaps with some different connotations, in other parts of the world? What is the aesthetic substrate prior to the predominant aesthetic at the time in history in question and, if it is possible to answer, what will come next?

2.10. Other aesthetics present at the same time in history

Notes, theses, articles, programme notes, critics' reviews… Anything that could be truly of use for a better understanding of the work. Pay attention to the fact that this paragraph must not become a catalogue or showcase of the sources in our possession: we need to illustrate and, above all, contextualize the documents that are truly relevant to the work.

3. Creating a score

We shall now look at the procedures involved in creating a score.

3.1. Why create a score?

Unlike "traditional" written music, in which we encounter figural elements denoting the best-known musical parameters, and may thus conduct a complete analysis (formal, harmonic, melodic, isolation of theme elements, of true "personalities" that populate the work in question), in electroacoustic music, as Nattiez says:

> The analytic approach can only be aesthetic-perceptive-cognitive, as there is no consolidated correlation between graphic representation and sound text (as in the case of instrumental music); the only text we can analyze is the "sound text" itself.

It follows that it is up to us to graphically represent the sound text, in order to better reveal the features of the work of music we are analyzing as a whole. But what if we were to apply the same procedure to any piece of music which might roughly be classified as "traditional" (a symphony, an opera, a sonata, a fugue...), in that it is also undeniably and absolutely a sound text?

3.2. How do we write a score?

The greatest risk is to fall into the "trap" of merely describing events, without analyzing them. This is why the score must be "mobile", continually changing and evolving, always "under construction". My advice is to listen to it first in a way we might call *generic* (Camilleri, 1993), passively, without "thinking too much", so as to identify macro-sections and/or particularly noteworthy acoustic elements, both absolutely temporary, to be confirmed, denied, corrected or refined as we proceed with the writing of our score. We then proceed with progressive "analytic scanning" of the entire piece through what we might describe as *perceptive-cognitive listening* (Camilleri, 1993), an active form of listening in which we seek to grasp the features of the piece. Every time we stop to analyze the piece, we draw conclusions, redefining micro and macro sections at each step, and identifying key sound elements in the work, gradually studying and defining their evolution. Formulation of draft proposals of analytic theses is permitted, and welcome, provided they are liable to being changed over and over again.

3.3. The operative proceedings involved in the process of creating a score

Let us now focus our attention on the operative proceedings involved in the process of creating a score

3.4. Description of sound objects

We shall begin with description of sound objects. We must not focus our attention on the sound object itself, for without context, it would be a sterile end in itself, and not very effective (if at all). We need to look at the sequence of sound objects described, tracing their evolution (or involution, dissipation...) and drawing conclusions effectively of use for understanding the object of our analysis. In order to do this, I have extrapolated from Pierre Schaeffer's *typomorphology*, perfectly explained in his *Traité des objets musicaux* (1966), the lexicology I consider most appropriate for this purpose:

a) Mass

The term mass refers to the way in which a sound occupies the range of pitches, that is, the quality that allows us to identify one or more pitches within a certain sound (Schaeffer, 1966). In other words, the mass of a sound object is that which allows us to identify one or more distinct pitches, and perceive the fact that it is made up of "agglomerate pitches" to which it is not always possible to assign a precise nominal pitch, but which can still be analysed as more or less high, medium or low.

Which of Schaeffer's terms allows us to provide the most accurate description possible?

- ✓ *Pure sound*: sound with an identifiable fixed pitch. A sinusoid
- ✓ *Tonal sound*: overlapping sinusoids, all with an identifiable fixed pitch and a specific timbre of their own
- ✓ *Tonal group*: a set of tonal sounds, all with an identifiable fixed pitch
- ✓ *White noise*: sound containing all audible frequencies. May be considered the alter ego of *pure sound* (a single frequency vs. all the frequencies together)
- ✓ *Nodal sound*: a sound perceptively similar to noise, the mass of which consists of a single compact agglomerate within which no specific pitch may be distinguished. It might be considered the alter ego of tonal sound
- ✓ *Nodal group*: a set of nodal sounds, each of which may be distinctly perceived. It might be considered the alter ego of the tonal group
- ✓ *Channeled sound*: sound containing tonal sound (pure sound and/or tonal sound and/or tonal group) and nodal sound–noise (nodal sound and/or nodal group and/or white noise).

b) Grain

Grain is defined as the micro-structure of the material of sound, reflecting the overall qualitative perception of a large number of small, irregular details characterising the surface of the object (Schaeffer, 1966). The question we ask is therefore: What kinds of grain can be of use to us in describing a sound?

- ✓ *Fine grain*
- ✓ *Medium grain*
- ✓ *Coarse grain*

3.5. Behaviour of sound objects

And now let us assess the behaviour of sound objects:

a) Gesture or texture?

We must first distinguish between two macro-types of behaviour: gesture and texture. Is there significant variation of energy in relatively short amount of time in the sound being analyzed? If the answer is yes, it is a *gesture*, defined by Denis Smalley as "an energy-motion trajectory". If the answer is no, it is a *texture*, or, to use Smalley's term, "a structural state in which the elements are balanced" (Smalley, 1997).

b) Gesture

Let us now focus on gesture. A gesture has motion, which may be characterized by growth or its opposite.

The types of motion may be:

- ✓ *Unidirectional ascent*
- ✓ *Unidirectional descent*
- ✓ *Unidirectional plane*
- ✓ *Reciprocal parabola*
- ✓ *Reciprocal oscillation*
- ✓ *Reciprocal undulation*
- ✓ *Cyclic (or centric) rotation*
- ✓ *Cyclic (or centric) spiral*
- ✓ *Cyclic (or centric) spin*
- ✓ *Centric (or cyclic) vortex*
- ✓ *Centric (or cyclic) pericentrality*
- ✓ *Centric (or cyclic) centrifugal motion*

Each of the types of motion may be characterised by one of the following types of growth:

- ✓ *Agglomeration*
- ✓ *Dissipation*
- ✓ *Dilation*
- ✓ *Contraction*
- ✓ *Divergence*
- ✓ *Convergence*
- ✓ *Exogeny*
- ✓ *Endogeny*

c) Texture

Now let us look at texture. Texture has its own internal micro-motion, referred to as "texture motion" (Smalley, 1997). To be very precise, these are, specifically, "Interactions in the motion of the components of texture":

- ✓ *Streaming*: Combination of moving layers
- ✓ *Flocking*: Small objective elements, whose activity and variation in density may be considered as a whole

    ✓ *Convolution*: Coiling and/or twisting
    ✓ *Turbulence*: Irregular fluctuation

d) Gesture-framing

There are two possible combinations of gesture and texture: *gesture-framing*, and *texture-setting* (Smalley, 1997). *Gesture-framing* is a gesture containing particles of texture within it. At the macroscopic level, it is characterized by a significant change in energy, even though it is made up of minuscule objective elements whose activity and variations in density may be considered as a single whole.

e) Texture-setting

Texture-setting is a texture containing gestures which have their own specific types of motion and growth.

The relationship between gesture and texture is a consideration that can be very useful for analysing the piece of music under consideration. The questions we may ask are: how are gesture and texture alternated? How do they interact? Which component of behaviour (textural or gestural) is prevalent? And what types of textural or gestural movement are useful or essential for understanding the work?

Let us take the example of the two sound objects appearing in the masterpiece *Mortuos plango, vivos voco* by Jonathan Harvey: the consonant "t" of the boy's voice and the cluster of rings of the bell. The consonant "t" is treated as follows: it is presented in its structural integrity, then with first order surrogacy, proliferated in consonantal elements, moves away from the original sound to reach a remote order of surrogacy, then its morphological integrity is restored to proliferate again in the consonantal elements noted previously. The cluster of rings of the bell is presented in its structural integrity, then with first order surrogacy, with a linear loosening of source bonding first to the second order and then to the third, finally proliferating in a rapid succession of clusters close together in time. In this specific case, studying the relationship between gesture and texture allows us to come to the conclusion that the clusters may be considered alter egos of the corresponding sound objects similar to the voice source: the consonant "t". There is undeniably a close analogy between the treatment of the two sound objects, exemplified and contextualized in the video at https://youtu.be/6HCXrRmh-LA, and summarized below in table 1:

BELL SOURCE: cluster	VOICE SOURCE: "T"
Simple cluster → GESTURE	"t" → GESTURE
Cluster with surrogacy → GESTURE	"t" with surrogacy → GESTURE
Rapid succession of clusters close together in time → GESTURE-FRAMING	Rapid succession of brief consonants with bell ASDR → GESTURE-FRAMING

(Source for Table 1: Author's Creation)

3.6. Source bonding and orders of surrogacy

The time has come to discuss source bonding and orders of surrogacy (Smalley, 1997). The question we now ask ourselves is: how "strong" is the bond between the sound being analyzed and the source that generated it, whatever it may be? What order of surrogacy does the sound belong to?

✓ *First order of surrogacy*: Translates the primitive gesture into sound, without any purely musical intention
✓ *Second order of surrogacy*: Traditional instrumental gesture
✓ *Third order of surrogacy*: Deduced or imagined gesture. Uncertainty as to the reality of the source or cause of the sound
✓ *Fourth order of surrogacy*: Remote, regarding gestural traces which can barely be connected with the gesture. Unknown source and cause of the sound
✓ *Zero order of surrogacy*: Primitive act or primary abstract idea

Considering the piece in terms of source bonding allows us to trace the evolution of the sound objects under consideration. The correspondence of the "t" and the clusters in *Mortuos Plango Vivos Voco* may be traced not only by virtue of the concepts of gesture and texture which we have looked at, but also in relation to their movement away from the concrete source that originated them. Let us now consider, as an example of further application of source bonding, a new sound object in *Mortuos plango*: the glissando, which pertains to both sound sources, the bell and the boy's voice. In view of the absence – at least in obvious form – of this sound object in the first section and the last three sections, we may observe, at each change of section, a continuous alternation between a prevalently synchronic nature (in sections 2 and 4) and a diachronic nature (in sections 3 and 5), and identify a chiastic succession in relation to the two sources, allowing us to observe a dual temporal nature in both, as illustrated in the video at https://www.youtube.com/watch?v=6dI_w-ORK9w

3.7. Spatial qualities of the piece

Let us now discuss the spatial qualities of the piece (Smalley, 1997). In writing the score, we will identify the characteristic paths of the sound objects that turn out to be of particular importance in the work, with a special focus on movement in real space. *Spatiomorphology*

concerns characteristic types of space and paths. There are two types of space: *composite space* and *listening space*. Composite space is space as it is organized in the medium employed. It may in turn be broken down into *internal space* and *external space*. In internal space, spectromorphology itself induces images of space (internal resonances), as if the vibrations were enclosed within a certain material. External space is the condition without which there could be no music. It is the vehicle for conveying sound. The listening space is the space in which the composed space is heard. It may in turn be divided into *diffused space* and *personal space*. Diffused space involves listening in a distant position in the acoustic field, while personal space applies to listening in a nearby position in the acoustic field. Characteristic paths may be divided into: *characteristic paths in virtual space* and *characteristic paths in real space*. Virtual space may be classified as *echo* and *reverberation*, which in turn may be classified as *close*, *distanced*, or *remote*. We therefore have: close echo, distant echo, and very distant echo, and clorse reverberation, distanced reverberation, and remote reverberation. Characteristic paths in real space, also referred to as motion in real space, are: *left*, *centre*, *right*, *front*, *back*, all changeable (Smalley, 1997).

It will be clear that the specific spatial positioning of sound objects and their characteristic paths in real space can provide us with very useful information and inspiration for reflection. Applied once again to *Mortuos Plango, Vivos Voco*, I have the following considerations to make, regarding the stereophonic version only:

1) The sounds opening the sections are primarily positioned in the left channel
2) As the sections follow one upon another, we realise that each sound source is associated with a specific channel: the voice with the right channel and the bell with the left

This may clearly be seen in the video at: https://youtu.be/uCHmNxhbzNU

We can only imagine how interesting the results would be if we were to apply spatiomorphology (not only in terms of real space) to analysis of the octophonic version.

4. Proper analysis

And now, the time has come to conduct the proper analysis of the piece, broken down into the points listed below:

4.1. Significant considerations regarding descriptive elements of the work

We can now answer the following questions (and, of course, raise more questions!):

- ✓ What are the principal sound elements, the true keys to the work?
- ✓ How do they change and evolve, in purely descriptive terms?
- ✓ What are the predominant sounds, in terms of quantity and quality, on the basis of Schaeffer's terminology?
- ✓ What is the micro-structure of the predominant sound material (grain)?
- ✓ What kinds of attack tend to be preferred?

We will justify all our answers with objective considerations or, if this is not possible, offer our own interpretation.

4.2. Significant considerations regarding the sound object in the work

- ✓ How do gesture and texture alternate in the work?
- ✓ How do they interact?
- ✓ What behavioural component (texture or gesture) is prevalent?
- ✓ And which type(s) of textural or gestural motion turn out to be useful, or even indispensable, for understanding the work?

We have already seen one example, with the "t" and the clusters in *Mortuos Plango*.

4.3. Significant considerations regarding source bonding

We now summarize bonds and correlations with the source of sound production, whether synthetic or instrumental.

- ✓ Can we obtain information about the source producing the perceived sounds?
- ✓ What is the range of the acoustic landscape? (Natural sounds, exclusively synthetic sound, etc.)

The above applies, broadened to include glissandos.

4.4. Technical and compositional framework

We will identify the compositional and electroacoustic techniques and technological instruments employed. Then we will discuss the processes of collection, organization and assembly of the materials, the procedures for electroacoustic transformation (additive, subtractive, vectorial, granular, or cross synthesis, AM or FM modulation, time stretching, etc.). Finally, we will attempt to reconstruct a number of sound elements on the basis of our theoretical knowledge and software skills.

Continuing to use *Mortuos Plango* as our example, consideration of these aspects has allowed us to identify the five types of sound object on which the composer focuses: the "pure" bell (1st and 8th sections), the bell tending toward the voice (2nd and 4th sections), the bell with vocal ADSR (3rd and 6th sections), the voice "ringing" like a bell (5th section) and the bell "singing" (7th section). All this is summarized in table 2 below:

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(Source for Table 2: Author's Creation)

It would be very interesting to attempt to reconstruct these sound objects, for example, using the *Source Filtering Cross Synthesis* and *Generalized Time-varying Cross Synthesis* techniques.

4.5. Significant considerations regarding the spatial qualities of the piece

We will draw a graphic score illustrating the piece's overall spatial qualities, comment, and draw the appropriate conclusions, with the aid of the lexicon and terminology specific to the characteristic paths, defined as motion in real space.

We have already addressed this topic applied to the sounds opening the 8 sections of *Mortuos Plango Vivos Voco*.

4.6. Macro-score summarizing the piece

We will produce a macro-score summarizing the piece, in fixed format (image: *jpeg*, *png*, *tiff* etc.) and in mobile format (video: *mov*, *mp4*, *avi*, *swf* etc.). *Acousmographe* (Gullani and al. 2011) and *EAnalysis* (Couprie, 2013) are excellent softwares that may be used for this purpose.

4.7. Analytical listening in historic context

We will conduct an analytic historicized listening session. With our summary macro-score "at hand", we will listen to the entire electroacoustic piece, mentally locating it in its historic context and taking into account any statements the composer may have made regarding the work. We will then comment and draw the appropriate conclusions.

4.8. Visual listening

We will then perform visual listening. We will highlight the sound elements of greatest interest in the work, applying the visual listening technique to them, which consists of listening to the appropriate fragments of the piece, observing the sonogram and noting confirmation and/or discrepancies between the graphic analysis and what we hear. Here is a direct application to the sound objects of *Mortuos Plango*. Visual listening, applied to several objects with simultaneous observation of the sonogram, confirms the correspondence between graphic analysis and auditory perception, as for these elements:

- ✓ Voice formant
- ✓ Cluster
- ✓ Nodal 't'
- ✓ Melisma on the 'a' in *Plango*
- ✓ Partials of the bell sound source
- ✓ Rapid succession of tonal vowels with bell ADSR
- ✓ Rapid succession of brief consonants with bell ADSR
- ✓ Rapid succession of bell sounds with consonantal ADSR
- ✓ Ascending glissando
- ✓ Descending glissando

N. B.: Proper analysis may be conducted, with the appropriate variations while it is in course and similarly to the formulas used in the temporary analytic texts, in parallel with and in the context of writing the score.

4.9. Positioning the work on Emmerson's grid

We proceed to position the work on Simon Emmerson's grid (Emmerson, 1986). It makes use of two basic parameters: *discourse* (or analytic attention) and *syntax* (or organization of material).

Discourse may in turn be divided into aural discourse and mimetic discourse:

- ✓ *Aural discourse* makes reference to the properties of the structure of musical syntax inherent in the material of sound, with a special focus on its intrinsic properties. In short, we may say that aural discourse refers to properties of syntactic-formal articulation
- ✓ *Mimetic discourse* involves association of a sound element with a natural phenomenon, in which there is a strong bond with the natural source
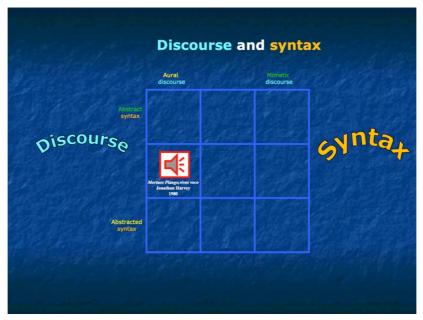
Syntax, on the other hand, may be divided into:

- ✓ *Abstracted syntax*: Direct syntax. Built by directly abstracting the material from the sound object. The structuring of the material is therefore somehow correlated to its internal structure
- ✓ *Abstract syntax*: Indirect syntax. Built independently of the sound object. There is no strict relationship between the material and the structuring method

In short: abstracted syntax is direct and built by abstracting the material directly from the sound object, while abstract syntax is indirect and built independently of it. The combination of the two types of syntax is referred to as:

- ✓ *Transcontextuality*: This is combination syntax, in which both of the above two types of syntax coexist. The listener may therefore perceive sound objects in both contexts.

Going back to our example, in *Mortuos Plango Vivos Voco* discourse is aural, because even though there are two concrete natural sound sources, the boy's voice and the tenor bell of Winchester Cathedral, they are manipulated, filtered, interpolated, and hybridised as completely abstract objects, merely on the basis of their acoustic content, sacrificing all references to their source and to the real world. Syntax is a combination of abstract and abstracted syntax, because although Harvey makes use of formal schemes extrapolated from spectral analysis of the sound of the bell, he intentionally combines them with sensitivity, perceptively analysing the results obtained, with surprising forms of processing and transformation of timbre that he skilfully controls and modifies. We may place therefore *Mortuos Plango, Vivos Voco* here in Table 3 below: aural discourse and a combination of abstract and abstracted syntax.

(Source for Table 3: Author's Creation)

5. Conclusions

Having completed all the steps in analysis, we may draw the appropriate conclusions, which, in my opinion, represent the most significant part, in which we profit the most from the fruit of our work. Here are the five questions to which we will now be able to offer exhaustive answers:

1) What meaning does the work have for you? What has it taught you?

2) What are the principal musical and/or aesthetic features that make the work analysed interesting or of key importance from the electroacoustic and/or historic point of view, or make it unique, even in relation to other works from the same time in history or similar to it in some other way?
3) Express your personal opinion on the composer's ideas expressed in the composition
4) What problems, if any, did you come up against in conducting this analysis? In what situations did you find the piece analysed easy to approach, in view of your experience analysing other pieces of music, both electroacoustic and otherwise?
5) Are there elements of particular significance in the analysis that could provide you with inspiration for your own compositions or other work?

By way of example, let us consider my answer to question number 1 in relation to *Mortuos Plango Vivos Voco:* What meaning does the work have for you? What has it taught you? Harvey's work inspires me to reflect on the relationship between Life and Death, which I like to define as one of "antithetical complementarity": we may observe how, in the first section of the work, the words of the text are pronounced very clearly, like a bell tolling: the two phrases "*Horas avolantes numero*" (I count the passing hours) and "*Mortuos plango*" (I lament the dead). The final phrase, "*Vivos ad preces voco*" (the living I call to prayer) is not, however, so clearly pronounced. We can clearly perceive a portion of it in the two syllables "*pre*" and "*ce(s)*" from the word "*preces*" (prayer, to which the living are called) in the fifth section, accompanied by the syllable "*vo*" from "*Voco*", surely intended to underline the call to prayer. We may therefore overall note:

1) the presence of elements of text in two sections of the work only, concentrated almost entirely in one of them (the first)
2) the contrast, also in meaning, between the first two phrases in the inscription engraved on the base of the bell, definitely more intimate (*Horas avolantes numero, Mortuos plango*) and the third, a call to action (*Vivos ad preces voco*)

We may however observe that the syllable "Vo" from "*Voco*" is pronounced breaking the melisma on the "a" in "*Plango*", and this allows us to suggest that Harvey may have wished to refer, through the parallels between "Voco" and "Plango", to the close relationship between the two, that is, between life and death, antithetical yet complementary realities in the dynamics of existence. Harvey underlines this dualism by representing life with the boy's voice and death with the bell, only to deny this through electroacoustic transformation of the sounds.

Allow me to offer you a brief quote from Maurizio La Marca's essay "Life and Death" (2013), which, in my opinion, perfectly sums up Jonathan Harvey's philosophy of the relationship between Life and Death:

> And death does not really exist in nature, except as a form of passage. Death is the antechamber of a new life. Everything is transformation. Life and death are part of an immense process of transformation, of which we see neither the beginning nor the end.

And here are the words of Jonathan Harvey himself, from his 2010 article "Spiritual Music: 'positive' negative theology?" (in Sholl and Van Maas, 2017: 10-11), which seem to confirm our theory:

> With the rise of spectralism and the use of electronics, the transformation of a flute into an oboe with all intermediate spectral stages produces a no man's land which is neither, and both. There are many ways in which morphing and changing one thing into another can be seen as a questioning of identity, that the rigid, name-enforced convention: "You are Jill, I am Jack" is blurred, no longer clear. I can turn into you, you can turn into me at a moment's notice.

And again, in an interview at the *2009 Huddersfield Contemporary Music Festival* (in Sholl and Van Maas, 2017: 10-11)*:*

> I love music which dissolves and makes ambiguous whatever exists. Electronic music does that: it can turn anything into anything else. […] Well know instruments can be made ambiguous, made to be both themselves and something else.

I shall conclude by reporting one final significant quote from the composer, in the above-mentioned article, which not only support our conclusions, but offers an actual definition of *Music* (in Sholl and Van Maas, 2017: 10-11):

> The ambiguities of music de-solidify reality, reflecting the discovery that objects and concepts are illusory. Thus the function of music is to reflect. For me this is precisely the mystery of music – what it actually does.

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