The role of behaviour in the analysis of electroacoustic music.

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Abstract

The analytical discourse is generally based on two assumptions: that to some extent musical traits, forms and meanings can be considered stable, and that the application of a good rule-grid should produce reliable results. But electroacoustic music pieces are often characterised by multiple-writings and a complex plot of changes, to which the analyst has to oppose a plurality of analytical strategies. This means not only reflecting on basic assumptions of a composition, dissecting musical materials and reviewing procedures, but it also means operating choices based on declarative statements, and assessments which give rise to resulting behaviours. In their turn, analytical behaviours can relate either to some paradigmatic proposition or to a personal, subjective conjecture. While creating different expectations, each of these orientations imply choices that are destined to become carriers of particular cogency within the analytical discourse.

Premise

Since the mid-XX century, the customary use of codified rules for the description of musical events has been upset by two concomitant factors: the practice of concrete music, which introduced the possibility of de-contextualisation of characteristic traits of sonorous objects; the practice of electronic music, which opened the doors to the artificial construction of timbre within a continuum of frequencies. In the same period the increasing importance ascribed by composers to randomness and non-linearity suggested a general re-thinking of musical time. In the Seventies, the advent of computer music emphasised the aesthetics of the micro-phonic, staged by digital technology but oriented by the knowledge of psycho-perceptive rules. At the end of the century sampling accelerated the hybridization of musical genres, while digital tools gave composers the freedom to try endless attunements of their works. Besides, both sampling and on-line communication produced a weakening of the author's monopoly over his artwork, created the premises for the irruption of differently intended authorship values and gave rise to a revival of the poetics of erraticity. As a whole, these practices represented a daunting challenge, since they produced musical results capable of by-passing the idea of linear development and introducing strong problems of analysis.

Musical meaning and listening behaviours

One listening function is that of retrieving the musical signification by following the evolution of formal and stylistic elements in the musical discourse. However, there are

different ways of interpreting a musical discourse. Some episodes stimulate anticipatory comprehension, and others allow retroactive understanding. Some episodes offer a fluctuating signification, which needs to be confirmed during the piece. Others, instead, may only reveal their musical meaning at the end, thanks to a deep understanding of the preceding episodes. Without intending to elude these general rules, listening to electroacoustic and acousmatic music very often challenges them. Composers, in fact, have been extremely free in the creation of musical materials and in the construction of musical forms; but in doing so, they have also affected the idea of musical development to the extent that in some cases listening to a new piece may offer insufficient information to set up an analytical discourse.

This could explain why in the presence of insufficient or contradictory information, the listener initially may resort to empathy, oriented towards the awareness of the pure presence of sound. Channelled by variations in the structures and in sonorous energy and guided by transformations of timbre, this empathy can become a selective, attentive space, modulated by a temporal set-up. Although margins of ambiguity may still exist, during the listening they can be gradually reduced. This can come about through observation of the articulations of musical discourse as well as of the general characters of sound materials. In this way one arrives, first, at identification of relevant sonorous entities, and then at their grouping into meaningful segments. This process is almost always based on a subjective approach which, to be validated, requires the analyst to make explicit statements and follow a methodological line. It is also true, however, that even in the most critical cases some traits of a musical work can be recognised afterwards and mapped within a linear time.

Nevertheless, not always recognition gives rise to musical signification, and sometime the structures recognised by the listener hardly correspond at all to those declared by the composer. In fact, the dimensions of listening and the production of musical signification act while interlacing with each other both on imaginative and perceptive planes, and always imply the presence of intentional factors: this is why the category of behaviour can play a crucial role within analytical approaches. According to R. Cogan, the interpretation of spectral dynamics over time almost always express the non neutrality of a subjective behaviour: by selecting functions, relationships and values the analyst may add meaningful levels to interpretation (Cogan, 1984). While discussing the individual, subjective variability of results of a segmentation, F. Delalande expressed the need of a method of comparison among different listening behaviours within the frame of an objective assessment (Delalande, 2002). A different approach related to variability was that proposed by D. Smalley: in his analyses he showed how some episodes of an acousmatic piece can be described through relationships between musical objects, as if they produced observable behaviours (Smalley, 1986). Indeed, a trajectory of sounds within the space can be seen through purely subjective viewpoint: as a projection of conjectures shaped in the composer's mind or evoked by the analyst.

However, the above-cited authors seem to agree on the fact that objective or subjective behaviours may be able to transfer new signification towards what is - in a specific moment - represented or referred through analysis.

Paradigms and intentions

Almost every analytical discourse is based on a strategy aimed at contextualising, deciphering and comprehending. Whether derived from theoretical paradigms or from heuristic models, a strategy usually reveals, as a basic assumption, one or more propositions that act as a mechanism for the production of rules. We can say that, since it was considered a paradigm,

the correlation between intention and perceived object through the practice of the *reduced listening* gave rise to the development of the Typo-Morphological methodology of analysis. We also know that in Spectro-Morphology some archetypal models, relating to the *transformation of* spectra over time and within spaces, constituted the basic assumptions that informed the steps of classification. Similarly, through considering sounds as *space-bearers*, the relationships between sonorous materials were at the basis of the Vandegorne's categories of space (Vandegorne, 2002) giving rise both to an analytical approach and a guide to staging acousmatic performances. As previously said, the idea of *variability* constituted a paradigmatic factor within the functional analysis. Francois Delalande based part of his methodological reflection on the variability of musical segmentation which depends on subjective inclinations. According to him the analyst will have to use a model-type, the so-called "average listener", but depending on the context, in order to either minimise or emphasise the subjective differences in interpreting segmentation. Along similar lines, the Intention/Reception project considers the variability of listener's conduct to be crucial within the communication between composer and listener: in fact research through comparison between composer's statements and listener's intention revealed differences in communication ranging from "weak" to "strong" (Landy, 2006).

What seems to be clear, however, is that the adoption of one or more paradigmatic assumptions often reveals an intention: that of starting an analytical inquiry by planning its development within what is expected to be the most favourable context. Since it establishes a hierarchy of qualities, a paradigmatic assumption lends itself to being used for many purposes: to interpret sonorous matter, to intercept musical emergence, to shape its forms and assess their signification. At the same time, the assumption of a paradigm can lead the analyst to create a grid of interpretative traits which can be very different from those stated by the composer. But still another fact may create imbalance between composer and listener. In fact, the possibility of choosing to work with different rule-grids may induce the composer to adopt multiple, overlapping writing strategies. In the same piece, he can assign to musical discourse a background derived from fluctuations in density, and then conceive it as an expression of spectro-morphological transformations. He can then use or invent generative methods for managing pitch transformations, eventually linked to sonorous motions. Each of these approaches (but many more could be considered) may correspond to different linguistic plans in order to justify the forms of musical change and their articulations.

Some authors noted that different writing strategies may generate conflicts between contradictory instances that sometimes remain hidden, though they act on a cognitive level. Agostino Di Scipio warned that "diversity between the experiences of *algorithmic composition* and *timbre composition* mirrors a cognitive dualism, to the extent that sound and structure can be experienced as different, if not conflicting" (Di Scipio, 1994). Alek Felstiner stated that, at a deep level, all electroacoustic music reveals conflict between "two compositional aims: the first celebrates the utopia of sound, an endless palette of timbre, resonance and sonority, while the second draws attention to the permeating force of technology and its impingement on the natural world" (Felstiner, 2003).

Communicative trajectories

Just as an electroacoustic composer can assign different degrees of coherence to a musical discourse, a listener can elaborate his own criteria for interpreting it. In fact, both compositional and analytical thinking, since they share predictive and volitive dimensions, though to a different extent, may share similar expectations. Through the predictive dimension one can rationalise and plan the application of already defined choices. Through the volitive dimension, one can solicit a strategic plan and put it into practice with suitable behaviours. While in the case of the composer the volitive dimension usually comes after the predictive one, and results in the execution of a carefully thought-out plan, in the case of musical analysis the volitive dimension needs to precede the predictive. It is the volitive dimension that directs the attention, orients the imagination and creates the frame that guides the analytical actions.

The analysis of an electroacoustic piece may often depend on the succession of the alternatives selected by the analyst in order to decipher a complex plot of changes, both sonorous and perceptual. The analyst can decide, for example, whether first to examine structural factors and prominent episodes, or to concentrate on the classification of musical objects and their morphological traits. He can then decide whether to examine those appearing to be the main compositional paths or concentrate on those appearing to be the secondary, interstitial processes. Besides changing the priority of preferences, the analyst can suspend, adjust or re-direct the inquiry in order to assess the quality of new data. This means that, depending on the analyst's preferences, each sound, passage, episode or section may reveal a different communicative trajectory and demand different interpretation tasks.

Hoping to achieve results that conform to a particular framework, all analysts would like to begin their inquiries in the presence of two operating conditions: the first is the reliability of an analysis-rules mechanism; the second is the stability of the connotations ascribed to musical objects. This wish derives from more general needs, for example the need to increase the homogeneity of musical discourse, to give a coherent description of the whole work, or to indicate families of morphological traits with a formal explanation. These needs often produce behaviours aimed at ascribing more importance to the abstract level and less importance to the concrete and pragmatic levels, to the extent that many typologies of musical qualities and related sub-descriptions are likely to be permeated by abstractions.

Nevertheless, although the knowledge of an abstract model can inform experience, only experience allows the analyst to elaborate the results so that they will make sense; distinguishing, for example, which variants of the original traits have been created through timbre-model constrained variations, and which through hybridization techniques. This notwithstanding, the analyst is often required to use abstract models in order to minimise the role of subjective variables, which may be considered responsible for indeterminacy in contents description. But, as in the case of musical segmentation, not always and not necessarily the subjective preferences need to be neutralised: on the contrary, they should be recognised as a specific quality of experience.

Negotiation between semiotic layers

You will remember that (drawing on studies of linguistic and phonology) Robert Cogan indicated a way for dealing with the problem of variability in subjective interpretation. He suggested an approach that is both formal and pragmatic. The comparison of opposite

qualities of sound based on the analysis of sonogram parameters provides grids of contextual markers which give rise to an index of variability, the "ratio of change". Formulated as a *dynamic mediation* between the visual/objective and the explanatory/subjective layers, this variability index forces the analytical path away from a strong expectation of objective forms of invariance. Other authors tried to use a similar strategy in order to deal with a number of semiotic layers, compare and assess the qualities of different explanations, and introduce negotiation between different descriptive levels.

Speaking in general, the method of comparing and crossing opposite viewpoints it is not new, since it was widely used within the interpretation of electroacoustic music: think of oppositions between abstract and concrete, macrophonic and microphonic, natural and artificial. The last opposition was that recalled by Alek Felstiner, when suggesting to substitute mere classification with a negotiation between the programmatic contents and the actual understanding of Bernard Parmegiani's *La creation du Monde*.

But if we can accept that negotiation between descriptive levels can be applied to the formal qualities of a piece, to spectral and morphological classification and to the first statements of an analytical path, why should we not try to assess analytical behaviours in a similar way ? The efficacy of behaviours depends on their goals and premises, and on intermediate actions which can be described and assessed individually. Within analytical behaviour we can distinguish actions that relate to the declarative, assessment and strategic aspects of analysis: such aspects are mixed in different proportions, according to the focus and the task involved. Hence, analytical behaviour can be understood as a result of sequence of choices depending on a negotiation between different layers, whose relative importance changes along the analytical path.

Besides reviewing the materials and procedures of a composition, the analyst can systematically reflect on the genesis of his own choices. He might first reflect on the recurrence of some actions, for example those of indicating, classifying, or establishing something; then he could consider their relationships with some intention in mind, like that of declaring a goal, assessing a process, or deciding on a strategy. We know that isolating actions from intentions is another form of abstraction, whose effects we can try to suspend.

The best way to do so is to reduce the effects of artificial separation through re-constructing the relationships between actions and intentions. In this way the analyst can obtain different combinations and grids, which will accompany his analytical work.

The following grids represent a very schematic example, which recalls my own way of disposing and ordering some analytical actions:

This first grid appear to be mainly *declarative*, but includes *assessment* intentions.

Here there are, in fact, the *actions of describing*:

Pertinent and distinctive traits of sonorous objects
Morphological groups and families of objects and spectra
Relationships among objects and spectra (episodic or constant)
Fluid or connective transitions or scenery-shifts

This second appears mainly to be an *evaluation* grid, but implies *classificatory* intentions.

Here there are the *actions of assessing*:

Types of musical processes (articulation, derivation, proliferation, reiteration, opposition, motion)
Rules adopted in each case
Functions of inclusion /exclusion (related to processes and rules)

The third grid is mainly *strategic*, but it also includes *assessment*.

Here there are the *actions o*f:

Identifying concurrency or conflicts between diverse rule-frames and tendencies.
Establishing a hierarchy of concurring and conflicting factors (processes, rule-frames, structures, contexts, intention, reception, behaviour)
Discussing concurrency and conflicts from different points of views

Recognising conflicts

The identification of conflicts is to be considered part of analytical behaviour. It has been demonstrated that recognising conflicting factors is helpful for analysis in the presence of divergent descriptions, when many stylistic differences are present, or when program indications and the listeners' opinions seem to diverge. Nevertheless, while the analysts often take into consideration some kinds of conflicts (like those among materials, among formal descriptions, among cognitive assets), they almost never examine conflicts within their own choices. The examination of these conflicts, seen as a form of self-assessment, could be included in any analytic protocol aimed at recognising the role played by the variability of subjective factors. However, a general examination of conflicts should identify their nature, origin and implications: while most of these factors can be fully understood within the local dimension of a musical piece, some can be understood only through comparative analyses.

This may also be shown to be true in a broader sense, I believe.

In fact, if it makes sense to maintain that musical forms can derive from single compositional intention, it also makes sense to conceive them as a provisional selection of a continuing, inter-textual, creative process. There are many musical practices which are aimed at blurring the distinction between inner and outer. These practices make it possible for every outer, whether seen as sonorous content, a musical code or a programming code, to be potentially integrated in an inner that does not cease to mutate and exteriorise itself. The result is a sort of mutual annexation. In this way composers and listeners experience music processing in different forms: as a game of deforming mirrors, as musical appropriation, as a multiple narrative which relies less and less on linear development. This way emphasises an idea of a multiplicity seen as coexistence of possibilities, which come true in a multitude of inter-relating forms. The awareness of this would encourage an analytical path not too firmly anchored to a particular assumption, nor to some authorial premise. It could give rise not only to a different reading of the development of a piece, but also to a better understanding of how

branched the genealogy of a stylistic options can be.

This awareness also signals the extent to which the analyst may accept the idea of openness within the analysis. This means taking into greater account the category of possibility, in order to use it when dealing with a context that is difficult to be deciphered. Because of too many concurring factors that provide a high degree of uncertainty there may be cases in which the analysis can only have uncertain, conjectural character. But some degree of uncertainty can be accepted, if considered as a factor that can be assessed along with the others. A provisional character of the analysis could be, perhaps, the price that has to be paid if the analyst's intention is that of step-by-step orientation, using a wide range of tools, and foregoing the conceptual homogeneity guaranteed by the use of paradigmatic assumptions. Because, although assuring margins of certainty, paradigmatic assumptions do not make it any easier to become aware of, or understand situations which are too far from some assumed premises, or clash with them.

Conclusion

To conclude this reflection, I think that, besides other hypotheses, an analyst should consider that of assessing his/her behaviours. Furthermore, I suggest he/she consider the genealogy of analytical facts as a double side of possibility and multiplicity. In fact multiplicity and possibility relate to the character of electroacoustic pieces, as they are based not so much on collections of single items or objects, but on bodies of internal and external relationships. They certainly include a list of sonorous entities, but also vectors and nodes, thresholds and mutating spaces, masses which move at different velocities, stable or temporary conjunctions whose motions are mirrored from subjective dynamisms. It is a stratified and dynamic complexity, that some call geological, some call sonorous topography, and that Denis Smalley described as a relational, perspectival[1] space. But this complexity often overwhelms and subverts our capability of musical prediction: the fact is that it is not a question of replacing old analytical paradigms with new ones. On the contrary, what is needed is a free combinatory of readings, of experiences, of efforts of imagination, where all the articulations appear in full evidence; where no kind of non-homogeneity and conflicting perspectives can remain hidden.

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