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**The role of the performer in the electroacoustic music
– around the mixed music and the real-time electronic music –**

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Abstract

Today, following the development of technology, the field of electronic and electroacoustic music is evidently indispensable and undeniable for the music creation. But, the performers such as pianists, violinists, flutists...and singers, are sometimes perplexed with this genre, because, the technological power of the electroacoustic music seems to be unlimited.

So what is the role of the performers in this present musical situation? How we can associate and conciliate between the composers of the electroacoustic music and the performers? On this point, the genre of the “mixed music” is important for the progress of the future musical world.

In this presentation, we propose firstly to clarify the definition of terms, ‘mixed’. As Vincent Tiffon¹ indicate, the meaning of the ‘mixed music’ stay ambiguous. When we talk about the repertory for the electroacoustic music and the instruments, why we don’t call *concerto*, but ‘mix’? According to *Mixis* written by an eminent French philosopher, Jocelyn Groisard², the origin of the concept ‘mix’, can go back in time of Aristotle. Groisard researches this notion until the neo-platonic period. Probably, it is interesting to study the origin and their chronological modification of this philosophical notion in order to adapt to the music.

Secondly, we will analyze concretely the characteristic of the ‘mixed’ music. And we will try to find out the reflection of the terminological in music itself, discussing the difficulty of synchronization, the question of fusion and fission, between two types of sounds – one treated by computer and the other of instruments, using as a musical example *Pluton* of Philippe Manoury.

Introduction

Today, in a world where technology concerning sound is highly advanced, the genre of ‘mixed music’, this means, musical pieces for instruments and electronic element, present a very fascinating universe. In addition, this genre is necessary and indispensable for us in order to reconcile the instrumental music played by humans with the electronic music component, In spite of difficulty and a need for significant effort from those who deal with the technological part, which requires highly complex skills in this field. This field has an ample capacity to expand and, in turn, create a new field of music; however, the concept of ‘music’

¹ See Vincent Tiffon, “Musique Mixte”, in *Théorie de la composition musicale au XX^{ème} siècle. Vol 2*, Nicolas Donin and Laurent Feneyrou (eds), Symétrie, Lyon, 2013, pp. 1297-1314.

² Jocelyn Groisard, *Mixis. Le problème du mélange dans la philosophie grecque d’Aristote à Simplicius*, Les Belles Lettres, collection « anagôgê », Paris, 2016.

is still ambiguous and to define it remains a challenge according to Vincent Tiffon³ and Marc Battier⁴. The style of ‘mixed music’ is classified precisely in chronological order by Daniel Teruggi⁵. But it also seems interesting to us to approach the meaning of this term, ‘mix’ or ‘mixed’ outside music, going back to its origins that date to the period of antiquity around the fourth century before Jesus Christ, for the following three reasons,

1. within the interdisciplinary or multidisciplinary research of the early 21st century, starting with the field of outside music, adapting to music opens new method of music research;
2. as the definition of ‘mixed music’ is not as well established, as is the concept of *musique concrète*, for example, studies of the term itself will bring new ideas to the musical world;
3. if we delimit the nomenclature of ‘mixed music’, the pieces for one instrument and electroacoustic music, *id est*, for two musical identities – visible and invisible –, we suppose that the instrumentalists wish to play the piece as the soloist with a kind of orchestra, as human plays a *concerto* and not a *duet*. The term ‘concerto’ comes from the term ‘concerto’ in Latin, which in general means, ‘to fight’. Certainly, the soloist and the orchestra take on a sort of human communication, but the soloist must struggle alone with the orchestra by quantity and with what creates an effect of contrast. Indeed, this idea of contrast is the objective of the *concerto* even if there is dialogue between the other instrumentalists, or if there is the part of *tutti*. On the contrary, in the case of ‘mixed music’, the author feels that the musical character or objective would be a little bit different. There is likely a special meaning other than *concerto*, such as duo, or trio, in the traditional ensemble music. Hence, studying the term ‘mix’ or ‘mixed’ should prove interesting.

As a pianist, this presentation will target only the repertory for piano and the electroacoustic element. Moreover, we simply treat the repertoires of ‘mixed music’ in a more conceptual, literary, even philosophical way, and do not take into consideration the problem of technology or technological tools. Neither will we talk about the different styles based on the institutions, such as GRM or IRCAM.

The Concept of ‘Mix’ among the Greeks

The ‘Mix’ concept in general

In the period of antiquity toward the fourth and third centuries, the Greek philosophers were fascinated with the phenomenon of ‘mixture’ and observed and examined this phenomenon. They commented on several forms of mixing and on developing the psychological and metaphysical notions, such as mixing the body with the soul, and this provoked a very violent

³ “[...] la locution de *musique mixtes* est ambiguë”, Vincent Tiffon, “Musique mixte”, in *Théorie de la composition musicale du XX^{ème} siècle. Vol. 2*, Nicolas Donin and Laurent Feneyrou (eds), Lyon, Symétrie, 2013, p. 1297.

⁴ “[...] définir ce que sont les musique mixtes est un défi”, Marc Battier, “Introduction”, in *Musique et Technologie. Regard sur les musiques mixtes*, Marc Battier (textes réunis par), Paris, INA, collection « Portraits polychromes », Hors série thématique, 2017, p. 7.

⁵ Daniel Teruggi, “Esquisse d’une taxonomie des musiques mixtes”, in *Musique et Technologie. Regard sur les musiques mixtes*, Marc Battier (textes réunis par), Paris, INA, collection « Portraits polychromes », Hors série thématique, 2017, translated by Eiko Shiono, p. 13: 1) Instruments and magnetic tape; 2) Electronic instruments played live; 3) Instruments processed in real time; 4) Instruments processed in real time with tape or recorded sounds; 5) Instruments controlling a device started from sensors or according to the play of the instrumentalist.

controversy. Jocelyn Groisard is a philologist, philosopher, and specialist in Greek and Latin; he is currently Associate professor at the Metropolitan University of Tokyo. His book *Mixis* is a study about the problems of ‘mix’ from Aristotle to Simplicius, published by *Les Belles Lettres* in 2016.

In this book, he studies and clarifies concretely the concept of ‘mixture’, which differs among philosophers. He makes reference to the original text of each philosopher, and translates that text by himself into French. The contents of this book, written in a precise, meticulous, and detailed manner, demonstrate the importance of the notion of ‘mixture’ and how ancient philosophers held different ideas. In fact, during this period, the disciplines were not distinctly divided, so that philosophers were working in all fields, including music theory. This causes us great confusion. Thus, here, we do not go into detail but we will draw from this book a single useful example of the Stoics, which seems to us relatively easy to schematize. We will then try to adapt the theory to music.

The tripartition of ‘Mix’

Below is a famous aphorism that all specialists of ancient Greek philosophy quote: “When the wine is mixed with water and you keep pouring water... is it wine or water?”⁶

This sentence is very significant because if one pours water into a vessel of wine, the color of the wine will be diluted; yet the wine does not vanish and does not change completely with the addition of water. We do not know if it is wine or water at that point. With regard to the ‘mixture’ (μῖξις), Chrisippus – one of the Stoics of the third century BC – introduced three forms of mixing. We quote below the explanation of Groisard:

The first type of mixing corresponds to the scheme of a juxtaposition where the ingredients are not truly unified, since they each retain their own contour and hold each other only by reciprocal “fitting” [...]. The example given is a pile of beans and grains of wheat; the second model is characterized by a real unification, but this one, which is referred to by the term “fusion” (σύγχυσις), is at the price of the destruction of the constituents, which gives place to a body of another nature than they, and in which they are not preserved, as in the case of medicinal compound; The third type of mixture, to which the denomination of “mixtion” (κρᾶσις) is reserved, unites the ingredients without destroying them through a process of extension of the one through the other term on which they form a mix which accumulates its own quality. It is this third model that Alexander undertakes to refute in the *De mixtione* by attacking in particular the notion of the penetration of the bodies.⁷

We should be noted that Alexander of Aphrodisias, a commentator on Aristotle, was hostile to Chrisippus’ ideas; however, the writings of Chrisippus are only fragmentarily preserved in a refutation of Alexander of Aphrodisias, so, paradoxically, we can know this theory of Stoic’s tripartition today through Alexander of Aphrodisias.

For example, if wheat is mixed with barley, it does not get mixed. This is a parataxis:

⁶ Jocelyn Groisard, *Mixis. Le problème de mélange dans la philosophie grecque d’Aristote à Simplicius*, Paris, Les Belles Lettres, 2016, p.ix. See also Sébastien Morlet, *Christianisme et Philosophie dans l’Antiquité. Les premières confrontations (I^{er} – VI^{ème} siècles)*, Paris, Le Livre de Poche, 2014; “Christianisme et Philosophie dans l’Antiquité. Séquence 5”, in *edx*, <https://www.edx.org/course/christianisme-et-philosophie-dans-sorbonnex-eg001x-0> (last accessed 01/18), available only with an account.

⁷ Jocelyn Groisard, *op.cit.*, pp. 80-81, translated by Eiko Shiono.

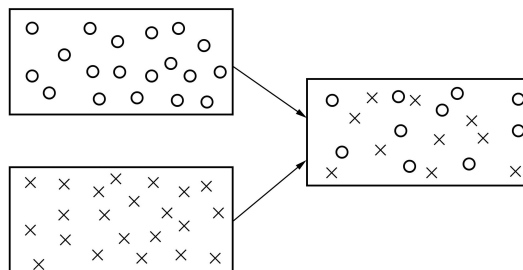


Figure 1: Juxtaposition παράθεσις

On the contrary, if one mixes yellow with blue, the resulting color is green; a complete change is manifested. This is a fusion:

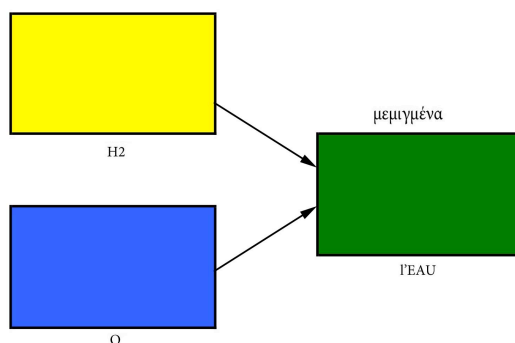


Figure 2: Fusion σύγχυσις

Finally, the third model situated between two models is an example of wine with water mentioned above (*supra*). In my opinion, this model is the most moderate and the most preferable:

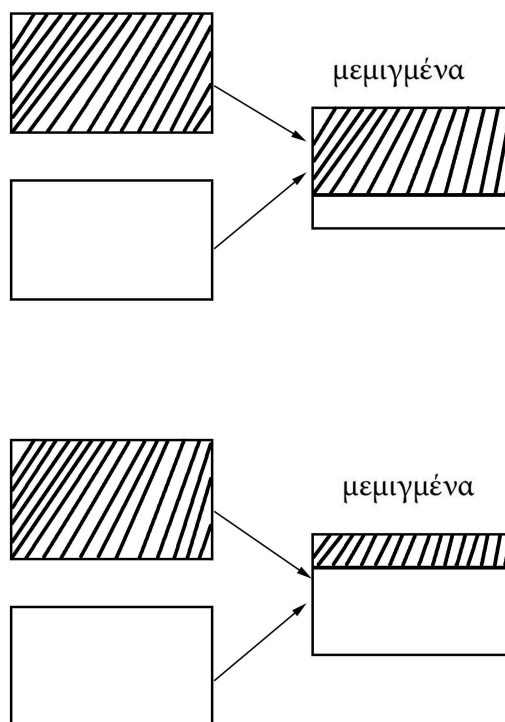


Figure 3: Unification κρᾶσις

Application of the tripartition concept to “mixed music”

Juxtaposition

If it is permissible to apply the tripartition notion to ‘mixed music’, as in the first model, the juxtaposition is not considered a true mixture; rather, it corresponds to the ‘mixed music’ of two elements simply juxtaposed or superimposed, according to Daniel Teruggi’s classification. This affirmation coincides accurately with the following lines by Marc Battier in an introduction. We quote:

For a long time [‘mixed music’ was] considered as the juxtaposition of an instrumental or vocal part with a magnetic tape containing studio-produced materials. However, the rapid evolution of technology and the invention of new techniques has upset this definition.⁸

Fusion

As the fusion of *timbre* is a primary concern among composers of ‘spectral music’ (the music of Marco Stroppa, Tristan Murail, Gérard Grisey, and other composers which is performed by *l’Ensemble Itinéraire*), the second model is applicable to them. Even if their works do not always contain ‘mixed music’, the development of computer music has contributed immensely to their works. Hugues Dufourt offers evidence in the following lines: “All these tendencies have become crystallized in the spectral music that has integrated the data of musical computing and the psychoacoustics [...]. ‘Spectral music’ would not have been born without the necessity introduced by the sound synthesis [...].”⁹

Unification

Finally, we suppose that the third model – with the unification of two elements while preserving each other’s identity – could probably correspond to the following points according to Daniel Terrugi’s classification, from number 3 to 5¹⁰.

Among these classifications, however, there remains a ‘thorny problem’ of the synchronization for number 3 and 4, according to Vincent Tiffon¹¹.

Synchronization between two elements

As long as the electroacoustic parts are more or less recorded, they are fixed in time; it is the interpreter who follows the progress of the music. Moreover, the electroacoustic part is superior by its volume (quantity) and its precision in playing rhythms and in the *tempo*. The instrumentalists are inevitably made subordinate to the machine and are obsessed with the thought of collaborating with the electronic sounds in a concert. From this perspective, the instrumentalists are prevented from the freedom of interpretation. However, the freedom of interpretation is one of the most essential points for a performance:

⁸ Marc Battier, *op. cit.*, p. 9., translated by Eiko Shiono.

⁹ Hugues Dufourt, “Questions en pointillés à Hugues Dufourt”, in *Musique spectrale, Rainy days 2005*, Philharmonie de Luxembourg, Luxembourg, 2005, p. 33, <http://studylibde.com/download/10857220> (last accessed 01/18); quoted by UNGEHEUER Elena, “L’électronique live. Vers une topologie de l’interaction interprète-machine”, in *Théorie de la composition musicale du XX^{ème} siècle, Vol. 2*, Nicolas Donin and Laurent Feneyrou (eds), Lyon, Symétrie, 2013, p. 1370.

¹⁰ See note 5.

¹¹ Vincent Tiffon, *op. cit.*, p. 1301.

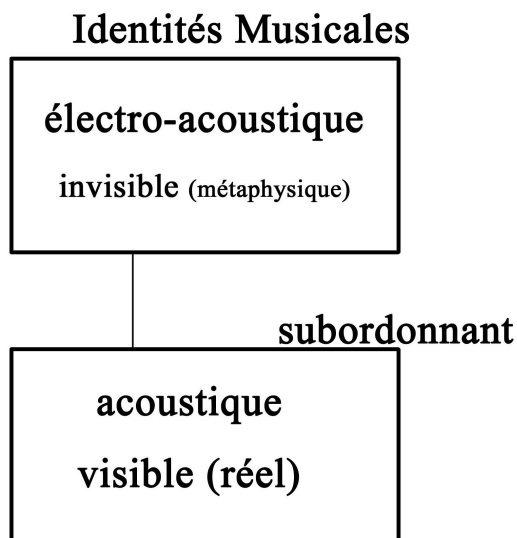


Figure 4: Unification κρᾶσις

Therefore, the genre of ‘live electronics’ would be ideal for the performers and it is this genre that is worthy of the ‘mixture of unification’ because the instrumentalists are freed from the problem of synchronization with technological tools and become independent. This genre corresponds to number 5 mentioned above. I think that independence and autonomy are most essential for human interpreters.

***Pluton* by Philippe Manoury**

Example of ‘live electronics’

Among the considerable repertoires of ‘live electronics’, we take *Pluton* by Philippe Manoury as an example.

General information on *Pluton* by Philippe Manoury

Pluton, written for a piano equipped with a midi sensor and a real-time synthesis and audio-digital processing system, is the second composition of the cycle *Sonus ex machina*, realized in collaboration with American mathematician Miller Puckette; in fact, this work is dedicated to him. When *Pluton* was created at the Festival d’Avignon in 1988 by Ichirō Nodaira, a Japanese pianist and composer, there were four sections sequenced together to last for 25’. Later on, Manoury extended the initial structure by adding a final section. In its final version completed in 1989, *Pluton* contains five parts, which last 51’ in total:

1. Toccata;
2. Antiphonie;
3. Séquences;
4. Modulations;
5. Variations.

Pluton is not the name of the planet; here, *Pluton* comes from Greco-Latin mythology, *Hades*, the God of hell (subterranean), which refers to not only the invisible machine but also the note repeated in the piano’s low register.

Characteristics of *Pluton* in the interaction

It is well-known that through the system called, ‘followers of score’ in the computer 4X designed at first by Giuseppe de Giugno at Ircam, the position between the two elements has been reversed. Now, the instrumentalists take the initiative and the electronic part follows them.

Manoury writes:

This work represents the integration of musical interpretation on with electronic synthetic music. Interpretation here is not just a way of achieving a discourse, but of modifying its very morphology. This means that in certain parts the computer follows the rhythms, harmonies and musical structures in real time, according to how the pianist plays the score. This is why we speak of virtual scores. The electronic score is not entirely determined in advance (recorded for example on tape or electronic instrument): only certain things are predetermined. In implementing these scores the computer analyses what the soloist plays, and it is the elements I have composed in the memory of the computer that generates the music.¹²

Yet, we insist on the importance of autonomy on the part of the pianist, released from the problem of synchronization by the ‘follower of the score’. Hence, two elements can have equal positions and are able to mix reciprocally, that is, the relationship of ‘contracting’ and ‘contracted’ one another, and yet conserving their identities. This is why we can call it the model of unification:

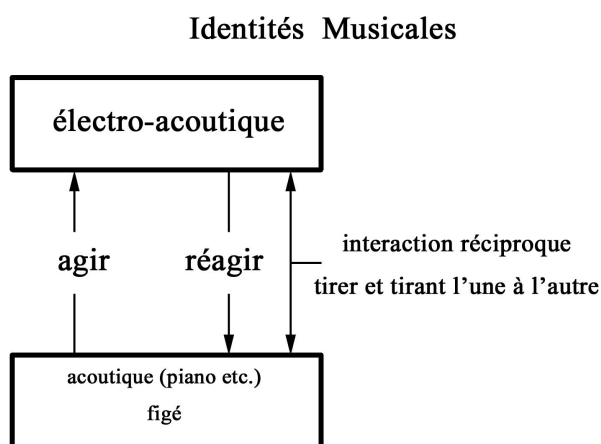


Figure 5: Relationship between the electroacoustic parts and the pianist in *Pluton* of Manoury

Characteristics of the piano part of *Pluton*

The virtuosity is required from the pianist entirely. The piano part is characterized by an alternation between the repeat of notes in the low register and the fast figurations in the high register. A motif of *Toccata*, – an introduction – comes back at ‘Variations’, which starts from the piano’s long *solo*. The note *H* and *B* (*si*, *si flat*) in the grave register integrates the totality of this piece. *Séquences* is written in a way of ‘aleatoric music’ (*musique aléatoire*), which reminds me of about the third sonata for piano of Boulez. The piano part is not absolutely the improvisation; it is completely written out, and hence, the performer has to play precisely and exactly what is written in the score.

¹² Philippe Manoury, *Pluton for MIDI piano and electronics*, with booklet translated from French to English by Timothy Binham, Helsinki, Ondine, ODE 888-2, 1998, p. 2.

Conclusion

‘Live electronics’ thus allows the following:

[...] The fascinating encounter between two universes, which could appear as antagonists within the usual cultural discourse: the universe of the living and that of the machine. From the point of view of musical creation, it is about an extension of the instrumental field, the technical options [...].¹³

We are just getting started on our study on the concept of ‘mixed music’. In this paper, we offer only one example on the concept of ‘mix’ among many discussions. It would be essential to discuss other theories of ‘mix’ that have varied over time since antiquity, and to examine how they have changed enormously over the centuries in order to apply the repertoires of ‘mixed music’, which are worth considering.

References

BATTIER Marc, “Introduction”, in *Musique et Technologie. Regard sur les musiques mixtes*, Marc Battier (textes réunis par), Paris, INA, collection « Portraits polychromes », Hors série thématique, 2017, pp. 9-11.

DUFOURT Hugues, “Questions en pointillés à Hugues Dufourt”, in *Musique spectrale, Rainy days 2005*, Philharmonie de Luxembourg, Luxembourg, 2005, pp. 30-33, <http://studylibde.com/download/10857220> (last accessed 01/18); quoted by UNGEHEUER Elena, “L’électronique live. Vers une topologie de l’interaction interprète-machine”, in *Théorie de la composition musicale du XX^{ème} siècle, Vol. 2*, Nicolas Donin and Laurent Feneyrou (eds), Lyon, Symétrie, 2013, p. 1370.

GROISARD Jocelyn, *Mixis. Le problème de mélange dans la philosophie grecque d’Aristote à Simplicius*, Paris, Les Belles Lettres, 2016.

MANOURY Philippe, *Pluton* (pour piano midi et électronique temps réel, 1988-1989), score, Paris, Durand.

MANOURY Philippe, *Pluton for MIDI piano and electronics*, with booklet translated from French to English by Timothy Binham, Helsinki, Ondine, ODE 888-2, 1998.

MORLET Sébastien, *Christianisme et Philosophie dans l’Antiquité. Les premières confrontations (I^{er} – VI^{ème} siècles)*, Paris, Le Livre de Poche, 2014; “Christianisme et Philosophie dans l’Antiquité. Séquence 5”, in *edx*, <https://www.edx.org/course/christianisme-et-philosophie-dans-sorbonnex-eg001x-0> (last accessed 01/18), available only with an account.

POIRIER Alain, “La courbure du parcours”, in *Philippe Manoury*, Risto Nieminen (ed), Paris, IRCAM / Centre Georges Pompidou, collection « Cahiers de l’IRCAM. Compositeur d’aujourd’hui », 8, 1995, <http://articles.ircam.fr/textes/Poirier95a/index.html> (last accessed 01/18).

TERUGGI Daniel, “Esquisse d’une taxonomie des musiques mixtes”, in *Musique et Technologie. Regard sur les musiques mixtes*, Marc Battier (textes réunis par), Paris, INA, collection « Portraits polychromes », Hors série thématique, 2017, pp. 13-20.

¹³ Elena Ungeheuer, “L’électronique live. Vers une topologie de l’interaction interprète-machine”, in *Théorie de la composition musicale du XX^{ème} siècle, op. cit.*, p. 1367.

TIFFON Vincent, “Musique mixte”, in *Théorie de la composition musicale du XX^{ème} siècle, Vol. 2*, Nicolas Donin and Laurent Feneyrou (eds), Lyon, Symétrie, 2013, pp. 1297-1314.

UNGEHEUER Elena, “L’électronique live. Vers une topologie de l’interaction interprète-machine”, in *Théorie de la composition musicale du XX^{ème} siècle, Vol. 2*, Nicolas Donin and Laurent Feneyrou (eds), Lyon, Symétrie, 2013, pp. 1367-1386.