"Music is not a language…"
Listening to Xenakis's electroacoustic Music

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When Iannis Xenakis wrote, in the *Diatope* presentation: "Music is not a language. Every musical piece is like a complex rock, formed by ridges and designs engraved within and without, that can be interpreted in a thousand different ways without a single one being the best or the most true. By virtue of this multiple exegesis, music inspires all sorts of fantastic imaginings, like a Crystal catalyst" (Xenakis 2006, 261), he asserts an important change in music conception, which has little by little gained ground during the twentieth-century. Here, Iannis Xenakis probably criticises the idea that music can only be structured—and conceived—depending on a temporal and chronological axis. When we are listening to Iannis Xenakis's electroacoustic music, we have to take into account this important assertion. Listener cannot consider Iannis Xenakis's music like a succession of entities, of well-delimited phenomena. The listener doesn't perceive a static musical structure composed of elements set in time, but he perceives a dynamical space. Thus, we have to analyse the particular confrontation between the different dynamical spaces and the listening…

Often, musicologists and analysts of contemporary music are led to ask some question about listening and sound: What is listening? What is sound? What are we grasping in music? And in order to answer these questions, I usually base my arguments on the notion of space. How this new notion for the twentieth century music—space—affects the definition of listening and of musical sound? In this way, Iannis Xenakis is a very important composer because he attaches a lot of importance to space not only as a container of sounds but also as an aesthetic result. In other words, Iannis Xenakis often build up spatial musical structures. This statement is very important for the listener: how does the audience listen within this musical structure—this space of sound? First, in order to answer this question, I will give two examples based on my own experience of the Iannis Xenakis's musical spaces. Then, I will examine what Iannis Xenakis says about the listening space.

Listening to Xenakis's electroacoustic Music

For my thesis, I wrote an analysis of *Concret PH* and to begin, I red some paper on this piece and on the *Philips Pavilion*. Little by little, I notice a close link between the musical work, the architectural space, and the many loudspeakers. During this analysis, a question haunted me: in the *Philips Pavilion* (and its specific space), how does the audience hear this work with such granular matter dispatched from more or less 400 loudspeakers?

400 loudspeakers make a lot of grains, an endless number of grains. The hyperbolic paraboloid surfaces and the specific vaults with high summit certainly cause many small delays and many indirect sounds. From this, we can conclude that the piece of work that we know thanks to the recording is probably very different from the original piece of work. The listener is not just confronted with sound (for *Concret PH*, we could say only one sound). He is into the sound: his entire body is immersed into the sound. With Concret PH, maybe for the first time in music history, music, sound and space are the same thing for the listener (It was the case with John Cage's *4'33"* too, but in a different way).

A second case is given by the piece *La légende d'Eer*. For a while, I was only familiar with the CD stereo recording of this work, which I listen to at home. During this time, I found this work very boring, especially the beginning, which was for me very long and monotonous. One day, I hear this work—*La légende d'Eer*—in a concert. To my amazement, it was one of the most fascinating musical experiences I had. Despite this marvelous experience, I have never felt this "other" aspect of this work in the CD recording. How the same work can be both so boring at home and so fascinating in a concert situation?

I am aware that the questions and the reactions that both examples elicit are very personal: they are the subjective point of view of one specific listener (myself in this case). My personal research on sound space certainly influences the way I listen to these works and most people

do not make such a distinction between these two different versions of the same work. After all, sounds—that the composer manipulates, puts together and creates—are always the "same" in each listening situation: there is no change in this concrete and objective part of the work (Ingarden 1986). However, if the subjective and the objective aspects never change (the objective aspect is naturally always the same and the subjective aspect is always unstable and uncertain), their confrontation introduces a disruption.

By focusing on their confrontation, the questions that I ask weaken these certainties. The question concerning *Concret PH*—"In the *Philips Pavilion* (and its specific space), how does the audience hear this work with such granular matter dispatched from more or less 400 loudspeakers?"—could be, in a more general way: is the subjective viewpoint so unstable and uncertain? In other words, isn't the subjective viewpoint of each listener, who hears these work, something intended and built up—organized and composed—by Iannis Xenakis? When I am asking about *La legende d'Eer* "How the same work can be both so boring at home and so fascinating in a concert situation?", this ingenuous question implies another question: is what we define as objective really unchanging and stable?

I believe that space is a very important element to answer these questions. It is not just because there were more loudspeakers or because sound was spatialized. In the concert situation, I had the feeling that silence was very vivid. For instance, at the beginning of the work, the faint whistling, which, at home, hurts my ears and was for me omnipresent and invasive became then a remote and isolated sound, as if shrouded in silence. This monotonous sound became a complex intertwining of spatial movements. These movements—this sound— could be compared with the fluttering of a flame, in a very specific area of the room.

These two personal experiences with two Iannis Xenakis's electroacoustic works show that space is not an optional musical parameter: from the beginning, the composer creates this musical space, these musical spatial dynamics. Most of the time, Iannis Xenakis's electroacoustic music cannot be conceived without a designed space or an architectural space, which Iannis Xenakis designed. But the notion of space cannot consist merely of this container, this preliminary space: in other words, the concert venue.

There is another space created by sounds: we previously notice that it coincides with the listener space. We have now to ask a question: how are we listening to space? What are we grasping in space?

Music is not a language…

At the beginning of the program for the *Diatope*, Iannis Xenakis writes this famous quotation:

"Music is not a language. Every musical piece is like a complex rock, formed by ridges and designs engraved within and without, that can be interpreted in a thousand different ways without a single one being the best or the most true. By virtue of this multiple exegesis, music inspires all sorts of fantastic imaginings, like a Crystal catalyst" (Xenakis 2006, 261).

This Iannis Xenakis's famous quotation, asserts an important change in music conception, which has little by little gained ground during the twentieth-century. When he said that "Music is not a language", Iannis Xenakis probably criticises the idea that music can only be structured—and conceived—depending on a temporal and chronological axis. In other words, like language, music should be a succession of entities, of well-defined phenomena. In this way, we can use these entities to establish a global sense of the musical work.

By taking the "rock" as an example, Iannis Xenakis reverses roles and situation: the work becomes the constitutive and fundamental entity. A rock is an entity, which cannot be broken down: we cannot look inside. The entities, which constitute this rock—atoms, molecules—, cannot be perceived by human eye. As Iannis Xenakis says, this rock can only be deciphered in different ephemeral and fragile ways. This aspect is obvious in the example that I gave. In *Concret PH*, the audience never cannot listen to the smallest elements of the work: the several grains, the different cracklings. On the other hand, neither can the listener grasps, nor reaches the global result of these grains cluster (Meric 2005) (for *Concret PH*, this global result correspond with entirety of the work).

In his book *Devant l'image, Question posée aux fins d'une histoire de l'art*, the philosopher and art historian Georges Didi-Huberman criticizes a certain history of art and a conception of the work of art. In a way, this critical is very close to the Iannis Xenakis's idea:

> And when it is in the element of art that he thus develops his search for lost time, the historian no longer even finds himself facing a circumscribed object, but rather something like a liquid or gas expansion—a cloud that changes shape constantly as it passes overhead. What can we know about a cloud, save by guessing, and without ever grasping it completely?

> Books on the history of art nonetheless know how to give us the impression of an object truly grasped and reconnoitred in its every aspect, like a past elucidated without remainder. Everything here seems visible, discerned. Exit the uncertainty principle. The whole of the visible here seems read, deciphered in accordance with the self-assured—apodictic—semiology of a medical diagnosis. And all of this makes, it is said, a science, a science based in the last resort on the certainty that the representation functions unitarily, that it is an accurate mirror or a transparent window, and that on the immediate ("natural") or indeed the transcendental ("symbolic") level, it is able to translate all concepts into images, all images into concepts. That in the end, everything lines up and fits together perfectly in the discourse of knowledge. Posing one's gaze to an art image, then, becomes a matter of knowing how to name everything that one sees—in fact, everything that one reads in the visible (Didi-Huberman 2005, 2-3).

In this critical quotation, Georges Didi-Huberman stresses the difference between the work of art conceived as an objet or as a well-defined image and the work of art compared to a cloud, which can be grasped. When we are looking at a liquid or gas expansion (cloud or smoke), our eyes are drawn neither to the droplets or particles, which make it up (they are individually invisible), nor to specific shapes (as Georges Didi-Huberman emphasizes, shapes constantly change; we can add that ephemeral shapes are volumetric displays, which are always different with varying viewpoints).

Sound space?

This leads us to the second example that I gave (the beginning of *La légende d'Eer*). When I listened to this beginning at home, there was only one whistling, which appears like a constant phenomenon. It was one phenomenon, which evolves in a chronological way. At first sight, it was a single and elementary movement, like a monologue. In a concert situation, the link between this sound and me was very different. First, all around me, there was silence (a spatial silence, not a silent pause): the link between the music and me was not plain. I not just had to switch on the music and to wait that sounds and music came out of the loudspeakers. In a concert situation, the listener has to grasp sounds into silence. And with these sounds, he has to make music. In other words, the listener plays an active part: he doesn't passively receive music like a well-defined and accomplished object (or image), which he can easily decipher and contemplate. When the listener has to grasp in silence the whistling at the beginning of *La légende d'Eer*, this whistling is a very complex, fragile and changeable phenomenon. In other words, the listener perceives the space, which emerges from sounds.

This last sentence is important to understand some aspects of Iannis Xenakis's electroacoustic music and, generally speaking, of computer music. First, it enables to understand the advent of some Iannis Xenakis's composing techniques like, for instance, granular synthesis, stochastic systems, probability theory, cellular automaton, and so on. In these complex systems, the smallest constituent element cannot be listened as a musical data (and, most often, it is individually imperceptible). These objective elements don't constitute the musical phenomena, which can be listened to. Like the rock example, we are not looking at the atomic structure, but we are looking at the endless number of "ridges and designs engraved within and without". In other words, we don't perceive a static musical structure composed of elements set in time, but we perceive a dynamical space. The smallest elements are only milestones (or an imperceptible spatial background).

The musical work looks like a game where the listener is confronted with a complex and dense phenomenon or object. Facing this complexity, the listener cannot grasp everything (each constituent element). So, it builds up its own ways through elements (and the discrete milestones they constitute).

This aspect is noticeable in the *Polytopes*. In these works, Iannis Xenakis leans on different spaces—sound space, visual space and architectural space— that he creates. These different

spaces, which are always dense or complex, are dependant and confront each other. So, he builds up a global perceptive space, which is extremely unstable. The audience cannot consider—listen and watch—the work—all the events—in its entirety. Each member of the audience can elaborate the work in a different way and from different experiences. So we can say that music—and its meaning(s)—emerges from the confrontation between the different dynamical spaces and listening (or imagination).

Here, we are talking about the listener experience: space is not a material for composing, a parameter used by the composer. In other words, Iannis Xenakis doesn't build up a specific space in which all listeners are immersed, like an architectural structure that people can visit and where each person can scrutinize detail at any moment and for as long he likes. The composer cannot indeed anticipate how each listener will face the music and the dynamic complexity. Iannis Xenakis doesn't compose sound space: he composes a sound structure, which gives different dynamic paths. In other words, space itself doesn't exist in composition: it cannot be considered as an objective aspect of music (but conversely, it cannot be only described as a subjective characteristic: the composed music guides the listening). Besides, we have to notice that, in most of the Iannis Xenakis's electroacoustic works, there was no stage, which the listener were facing and, so, there was no landmark like in a stereophonic situation, where the listener could spot a right side and a left side, the front (where the music normally happens) and the back (which normally remains silence). In the *Polytopes* or in the *Philips Pavillon*, the audience could look—and hear—in the direction that he choses, he could stand— or sit—where he wanted and could move around the structure. Furthermore, for *La légende d'Eer* and for *Concret PH*, the buildings created by Xenakis were asymmetric. At last, these works were conceived like multimedia art forms (Solomos 2005) (with sound, light, video screening, architectural structure): perceived space was not only sound space (visual space interacted with music and it forms a part of it). Here, we can say that Iannis Xenakis composes a dynamic space with no strong landmark.

A comparison can be drawn between this observation about this "composition" of space and what Iannis Xenakis said about microsound synthesis at the end of the chapter 9—"New proposals in microsound structure"—of *Formalized Music*:

> We shall raise the contradiction, and by doing so we hope to open a new path in microsound synthesis research—one that without pretending to be able to simulate already known sounds, will nevertheless launch music, its psychophysiology, and acoustics in a direction that is quite interesting and unexpected.
>
> Instead of starting from the unit element concept and its tireless iteration and from the increasing irregular superposition of such iterated unit elements, we can start from a disorder concept and then introduce means that would increase or reduce it. This is like saying that we take the inverse road: we do not wish to construct a complex sound edifice by using discontinuous unit elements (bricks: sine or other functions); we wish to construct sounds with continuous variations of the sound pressure directly. We can imagine the pressure using stochastic variations produced by a particle capriciously moving around the equilibrium positions along the pressure ordinate in a non-deterministic way; therefore we can imagine the use of any "random walk" or multiple combinations of them (Xenakis 1992, 246).

The idea on composition described here by Iannis Xenakis recalls the listener situation immersed in a space he has to bring to life and to revive it in each listening situation. The emergence from confronting dynamics, the presence of dense and complex background and the involvement of listening and imagination (which are not only the end of the musical process, but the beginning too), require an intermediate level between the objective level (the multiplicity of musical elements from the background) and the subjective level (listening and imagination). Without this intermediate level, it is difficult to understand and to pinpoint the interplay of the different involved dynamics (in particular the sound dynamics and the dynamics of listening "trying to find its way" among these dense composed dynamics). In other words, this emergent dynamical space cannot only be considered neither as the sole outcome of the compositional process, nor as a subjective aspect of listening. So, when we want to analyse a Iannis Xenakis's work, we must understand how the composer organizes this complex spaces and how listening grasps some movements inside it.

By taking into account this spatial confrontation with Iannis Xenakis electroacoustic music, we can notice the fundamental importance of music processes. Today, computer music enables us

to consider sound not as a static and well-defined entity but as a complex structure of dynamical data. So, composing plays with these multiple data, which are not directly reachable for listening (and for analysing). However, listening creates its own space using them. Thanks to Iannis Xenakis, Music is becoming more like a rock with complex forms:

> [...], the artist must also master fundamental disciplines such as certain branches of physics, mathematics, astrophysics, biology, and computer science. In reality, an artist is a theoretician, a manipulator, a creator of forms in movement. See from the point of view of art, all of our knowledge and our actions are but aesthetic expressions of forms and their transformations (Xenakis 2006, 271).

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