Circuit
Musiques contemporaines

Spatialization as a Compositional Tool and Individual Access to Music in the Future

Jonathan Harvey in Conversation with Nicolas Donin

La spatialisation comme outil de composition et accès individuel à la musique

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Volume 16, numéro 3, 2006

À musique contemporaine, supports contemporains?

URI : https://id.erudit.org/iderudit/902414ar
DOI : https://doi.org/10.7202/902414ar

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Éditeur(s)

Les Presses de l'Université de Montréal

ISSN

1183-1693 (imprimé)
1488-9692 (numérique)

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Citer ce document

Donin, N. (2006). Spatialization as a Compositional Tool and Individual Access to Music in the Future: Jonathan Harvey in Conversation with Nicolas Donin. *Circuit*, *16*(3), 75–82. https://doi.org/10.7202/902414ar

Résumé de l'article

Depuis ses premiers contacts avec les réalisations de Stockhausen se servant de la spatialisation mobile comme paramètre musical à part entière, des considérations spatiales jouent un rôle prépondérant dans la pensée — notamment sous l'influence de Bachelard — ainsi que dans la musique — particulièrement grâce au spatialisateur — de Jonathan Harvey. Le compositeur discute la fonction du concert électroacoustique, le contexte domestique d'écoute, les possibilités pour l'avenir de joindre le son et l'image dans des appareils du type cinéma maison, et les façons dont la technologie peut être exploitée comme outil pédagogique au service d'une musique complexe.

Spatialization as a Compositional Tool and Individual Access to Music in the Future[1]

Jonathan Harvey in Conversation with Nicolas Donin

Stockhausen's Legacy

Nicolas Donin: The problematization of space in a musical composition, i.e., turning the spatial properties of sound into a musical parameter in and of itself, was spectacularly attempted by Stockhausen, notably in *Gruppen* for three orchestras in 1955-1957, which is a work which you analyzed in depth.[2] How does your own work on space tie in with this tradition?

Jonathan Harvey: What is fundamental to my thinking is that there be a dialogue in space, and that is something which one can, as a composer, make clear and interesting, or else ignore. More interesting is the question of *moving* spatialization, which is equally present in life. We ourselves move all the time, and we hear sounds from a moving perspective. Most of the time, in fact, we hear sounds that move. Moving sounds are nothing new, they are very normal in life. In the concert hall, however, it is not normal at all. For centuries, we have had static sound, static spatialization. Now, we are changing all that in music. And the developments at IRCAM and other studios with very fast and sophisticated computers made it possible.

The movement has of course been present since Stockhausen; particularly in his work from the 1950s — *Kontakte* [1958-1960] for example. In that piece, Stockhausen used six types of spatialization: sound moves straight across the concert hall; sound rotates at a fast or slow speed; there are discrete points at

1. A shorter version of this interview was published in French translation in the *Cahiers de Médiologie*, n° 18, 2004, *Révolutions industrielles de la musique*, Nicolas Donin and Bernard Stiegler (eds.), p. 211-216. The interview took place at IRCAM on February 24, 2004. I wish to express my gratitude to Jonathan Goldman for having edited the transcript.

2. In Chapter 7 of Jonathan Harvey, *The Music of Stockhausen*, London, Faber and Faber, 1975.

different places in the concert hall, etc. Six important musical ideas, each one like a musical theme.[3] This is a way of structuring spatial movement, and Stockhausen had, in addition, a loudspeaker on the table around which he placed four microphones at four points of a square. He would turn the table electrically very fast or very slowly and record the rotating sound into the microphones. Or, by changing the plug-in point of the microphones, it would make for a different type of rotating shape — not just circular. So with the first types of electronic manipulation, Stockhausen was at that time able to do very interesting spatial work, which was not just cosmetic, but fundamental to musical thinking.

3. Harvey discusses *Kontakte* in the abovementioned study of Stockhausen, p. 88-90.

When I was quite young I became interested in his work and I felt there was a certain metaphysics in Stockhausen. This metaphysics is concerned with flying. One's movement as a body in space, but also among other bodies themselves moving around: invisible objects or presences moving. This seems to be a very important change in music, because it's a completely new dimension. In the 20th century, we had for example the growth of timbre — a very important new dimension in composers' thought — which led to Spectralism, and to the use of the computer as such as a tool for studying the nature of acoustic structure. Next, we had movement: music began to take off: it began to fly. So I believe it's a revolution, a fundamental one, and not just a pretty thing — not something sensational like 'son et lumière'. This ties in with Gaston Bachelard, a writer I like very much — particularly his *L'Air et les songes*.[4] It's not well known in England at all — but it *is* translated into English,[5] and a few people read it now. Suffice it to say that it has been very influential on me. I love the idea of dynamic movement being at the base of thought, for example, moral thought being impossible without a concept of 'high' and 'low'. Without them, you cannot *think* morality. There are many other examples of how space precedes logical thought. This is very fundamental.

4. Paris, Librairie José Corti, 1943.

5. *Air and Dreams: an Essay on the Imagination of Movement*, Dallas, Dallas Institute Publications, 1988.

Compositional implications of the *Spatialisateur*

Coming to IRCAM, then, and working with the *spatialisateur*,[6] further refinements of movements in space became possible, because the control is complex. One can regulate the type of reflections of the sound, their reverberations, whether they arrive early or late, how far the sound is moving away in space and what kind of environment the sound has around it: hard or soft walls, smooth walls or irregular ones — like trees in a forest, irregular blocks that reflect the sound in a different way, as well as the high or low quality of the frequencies.

6. "Spat": a computer tool developed at IRCAM for real-time spatial processing of sound.

The independence of the speakers is very important. The fact that you can have 4, 6, 8 or 20 speakers, or any number you like: the sound is *between* the

speakers. It doesn't come from *this* speaker or *that* speaker. It is always calculated to use the speakers to locate itself. You're never conscious in my experience of any one particular speaker. You're always conscious of sound being somewhere around you, with the *spatialisateur*. That is a big improvement on Stockhausen's early experiments in the 1950s. Of course, any tracery is possible; one can make any trajectory with a pen, for example, on the graphic tablet. One can draw in real time any movement in space. Beyond that, I have constructed rhythmic movements. I think other composers have as well, such as Emmanuel Nunes. This is when the sounds that are being played into the microphone move according to musical structures which are played as sound by the instruments — rhythmic structures. So you have two levels: the rhythmic structure of the instruments in the normal way, and at the same time — perhaps in counterpoint to that — you have the rhythmic structure of how it moves in space. And of course it can move quickly and clearly with the *spatialisateur*. So you can have a rhythm [*sings and illustrates spatialization with index finger*] 1,2; 1,2,3,4,5,6; 1,2 which is quite clear in moving from left to right, or from front to back, in defining the beats. In this way, one can make *rhythmic themes* in space.

In my last quartet[7] I tried to emphasize that by making very indefinite sounds move. Sounds which are just made on the body of the instrument with the bow, for example, which produce wind-like noise. So you hear this wind blowing in a rhythm, and there is no 'music' to distract from just listening to the movement of the noise. There are quite long periods when only that is present, contrasted with other periods when the music is more like normal music, when normal parameters are in play. We are able to enter into sound more deeply and we get nearer to Bachelard's oneiric flight, because the sound is moving. If you just see musicians on a stage, in the distance, as is the case normally, you tend to have a sense of *self* and *other*, of *them* and *us*. They're different, and there is a kind of wall between us — however involved we are in the performance. In the case of speakers placed all around the auditorium, however, there is sometimes a different and rather profound psychological change. It becomes a way of living the music, or swimming in the sea of music, or moving as body in a quite different way.

7. String Quartet no. 4 (2003), with live electronics developed by Gilbert Nouno, IRCAM.

Spatialization, Home Cinema and Domestic Listening

Nicolas Donin: Could it be said that the new technologies of sound and image reproduction, which have been commercialized in the last few years in the form of home cinema systems, are a kind of domestic equivalent to the types of listening situations which you have been discussing?

Jonathan Harvey: That is the question of the domestic context of music: when you don't see the players. I recently spoke here at IRCAM about how the home of the future would certainly be equipped with a multimedia room. It's not so far in the future because we already have an Imax screen and big surround screens. We like to get closer and closer to the ordinary world. It's a paradox. We spend more and more money to get closer and closer to what we have around us all the time. Maybe the ideal result of this will be not being able to tell the difference between your media room and the outside world: sound all around you, screen all around you. But of course, the important difference is that it is controlled by *you*, by interactive processes, by the artist and the world you want to be controlled by. To enter the artist's world you play your CD or your DVD or anything else, and the artist controls your reality as if it were real life. You can't tell the difference. You're really in a concert hall or in the middle of an orchestra, or you're in the middle of some fantastic science fiction sound world which you've never heard before. And let's hope it's a work of art as well. It's a good opportunity for artists to create virtual worlds which are *extraordinary*. So I think that will happen, and I think it is a great opportunity for artists.

Now we come to the social aspect of our question. Of course, we need to go to social rituals, meeting our friends and getting the feeling that we're all together receiving the work of art. I value that very highly, I have to say — the almost telepathic communication from one human being to another. Nevertheless, virtual reality certainly has become a very powerful alternative way of living.

Nicolas Donin: Do you generally think and make music in relation to the varieties of space in which it will be heard, as well as to the medium on which it will be diffused?

Jonathan Harvey: Yes, but I have to confess it's mostly for a hall and the occasion of people gathering together and listening to music together that I have in mind when I compose. I have never written a work for CD. Even the tape works that I have written, I imagine them in a beautiful hall. Because there is something splendid about being in a fairly large space and hearing the voice of the room or hall in a multichannel tape work. Some of my friends say: 'No, listening is better at home. You don't need to go to any halls any more. You can do everything at home!' That is really what they believe, but I don't. It may be what will happen in the future, but it's not necessarily my favorite path to the future, or what I would desire. What I *would* desire, however, is for recordings to be multi-track — a really good simulation of space, and of course, if possible, with wide use of spatialization.

Interactive Possibilities in the Future

Nicolas Donin: In your opinion, what manipulations are possible or desirable today for the listener?

Jonathan Harvey: Anything that helps the listener to understand the music is important: to be able to select excerpts from a piece — violins alone, contrabassoon or woodwinds alone; to be able to play what you want — either this way or that way. You can select. And maybe there's a text which can help you to understand the piece and you can go to a certain point in the music and listen to what the text is talking about. 'This is an important idea', the text says, so you can listen to it — even if it's hidden in the ensemble.

Nicolas Donin: You were saying that it is important to be present with the musicians, particularly in order to be able to see them playing. The principle of home cinema, as it exists today, is in fact to place a single screen as the main focus of attention. Although today's music DVDs are undoubtedly not very different from conventional TV programs, and are only remotely interactive, would it not be possible to imagine a different function altogether for the visual element in this kind of system?

Jonathan Harvey: I think it is important to see the players — but not all the time. That poses problems of consistency, similar, I suppose, to those in a TV broadcast of a concert. *Either* you need to see the players all the time, *or* you need some visual abstraction. Maybe the two could be mixed and still be aesthetically successful. But if you don't just look at the players, then you can perhaps look at the score, or you can look at some abstract version of the score. For instance, for people who don't read music, you can watch figures, lines or shapes passing by. You can be more or less pedagogical, more or less artistic, you can make repetitions clear with symbols, or you can ask an artist to make a poetic analogue — which is dangerous — but maybe it could work! With a good composer and a good artist...

Nicolas Donin: But that doesn't ensure a good connection. At any rate, is it safe to say that for you the concert situation still takes precedent over a domestic listening experience?

Jonathan Harvey: I think the live performance is usually the aim for me personally. If I listen to a CD now, I always think 'Oh, I want to hear that piece.' I don't think, 'I have just heard it,' so now I must go to a concert and really hear it: because that is the most living experience. I don't mean to say that reproduced sound is without value — of course you have wonderful aesthetic and poetic experiences from reproduced sound, but it's not quite the same.

Nicolas Donin: I'd like to return to Stockhausen, to *Kontakte* and *Gruppen*. As it happens, the first time I heard *Gruppen*, what struck me was the fact that I couldn't make sense of anything before hearing it for the second time, from a different vantage point.[8] One gets the sense that the work does not exist as a single discrete occurrence, but rather differently in every different experience of the work. Could it not be the case that we could have faster access, in a domestic listening environment, to this dimension of multiplicity of the work?

8. As is often the case, in this concert *Gruppen* was performed twice, and the audience members were invited to change positions for the second performance.

Jonathan Harvey: One could imagine having control — being able to change your seat during the performance without having to wait for the interval, or being able to slowly change your perspective. I think that would be possible, technically, though I'm not sure. Were it possible to move your listening head around an orchestra, *that* would be very interesting.

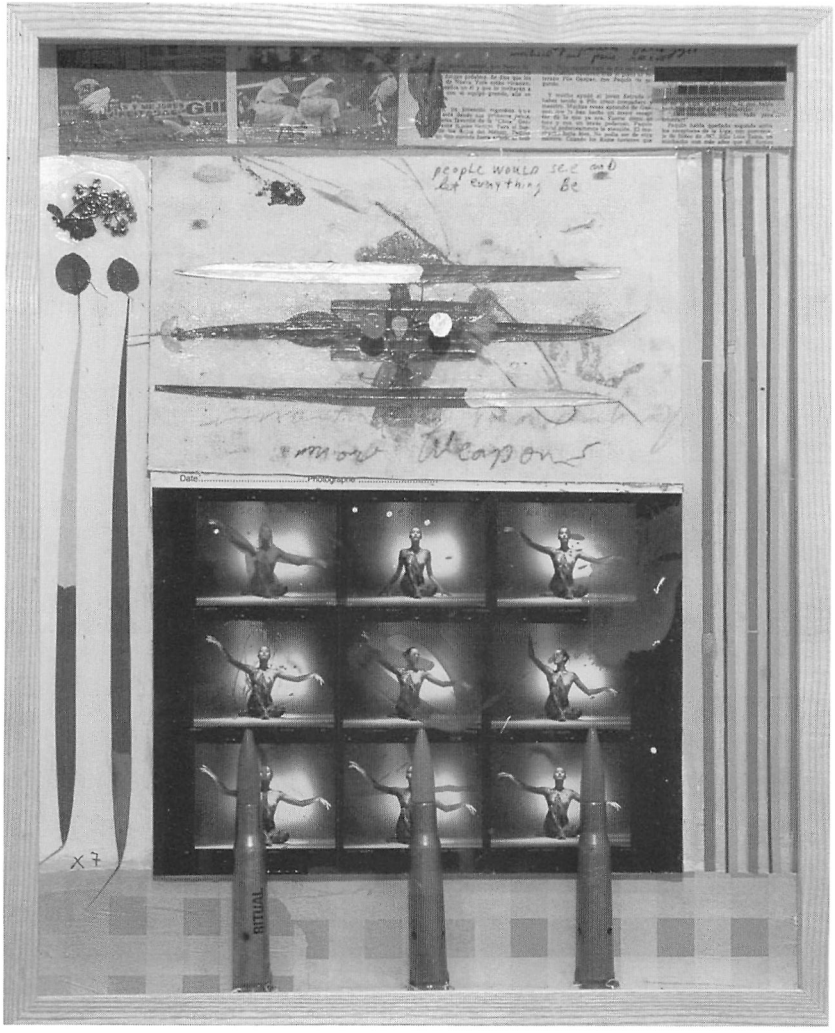
Nicolas Donin: It might not be possible to claim that the concert hall offers a 'correct' or 'proper' listening experience. If an alternative listening experience is available in a domestic space, with all of these aspects added to the 'original' experience, then there is a kind of complementarity between the concert and the domestic listening situations.

Jonathan Harvey: It's the same with the CD, really. On a good recording you can hear things in detail which cannot be heard in a concert hall: the two *do* go together. But of course it would be possible to install 10 or 15 microphones in the auditorium for a performance of *Gruppen*, and just switch from one input to the other. It's really quite simple; you could do that with a Brahms symphony. And so you'd get these different perspectives. These improvements would be more significant for a work like *Gruppen* than for the Brahms however. What would be more significant for the Brahms piece would be the techniques of singling out certain passages, certain layers: if you want to play, for instance, only the accompaniment in the strings, and not the melody. You might want to listen carefully to the bass strings alone, as an educational tool, because most people will listen only to the melody, and they won't bother concentrating on what's going on underneath.

Nicolas Donin: Let's suppose that all these manipulations which we have been discussing were now possible with a standard home cinema. How would this affect the way that composers imagine and then compose their music which will be widely played on such systems?

Jonathan Harvey: The obvious thing that will happen is that the music will become more complex. Imagine Brian Ferneyhough and his piece *La terre*

est un homme (1976-1979), for large orchestra, which is very rarely played. Every player, all the violins, have complex solo parts — extremely refined and multi-dimensional parts. It's an orchestra composed of soloists. It's impossible to hear — and Ferneyhough agrees — it all depends on where you're sitting. It's different in each seat. Imagine that with a refined system enabling a change in your listening location. You would be able to explore a work like this, which is a labyrinth. You would be able to explore this labyrinth as you wish. And that might be exciting, more exciting perhaps than hearing it in a concert hall. Composers attracted to complexity will be able to compose labyrinths which can't be seen at a glance; they have to be explored slowly. That will be an important change.



People will see and let be (2006, technique mixte, 18" X 21")