

The Architectonic Biology of Sound: Revaluating the analog studio.

An Interview with Kees Tazelaar

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We speak with Kees Tazelaar (1962), one of the interesting Dutch composers of his generation. Since 2006, he leads the Institute of Sonology in The Netherlands, where he teaches voltage control techniques in one of the nowadays few European analog studios, specializing himself in electro-acoustic music. From 1991 until this date he has composed around twenty demanding pieces and this healthy production seems to increase very steadily. He has been involved, among other interesting activities, in the restoration of tapes and electro-acoustic material of some of the milestones of last century, such as 'Concret PH' by Iannis Xenakis, 'Artikulation' by György Ligeti, 'Terminus' by G.M. Koenig and 'Poème Électronique' by Edgar Varèse, among others.

This paper was realized in spring 2009. It revolves around some interpolated biographical brushstrokes and some personal viewpoints of Kees Tazelaar's career within the framework of a 'quasi-dialogue' interview. Some topics are underlined, such as time articulation in electronic music within the context of fixed media; the subjective approach of time in the electronic means, unlike the pure computer-assisted digital approach or the compositional approach in instrumental music.

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[As a kind of Prelude, the interview starts spontaneously in the middle of a previously improvised conversation discussing some things we would speak about later, within the framework of the interview]

AA: It is a very interesting idea to work with spatial abstractions. And then you can work later not depending on time. For instance, when I listened to 'Lustre' for the first time, I realized a couple of things. One of them is a double discourse. I have never

heard phenomena in electronic music like that. When you listen to this music, there is a kind of material that is crossing through the space, let us say, in constant transformation, but on the other hand you hear different things as well. You articulate the material using different 'more-and-more-on-the-surface' materials, let us say. And that is very interesting, because you are concentrated on sounds, which I imagine, while listening to them, as a kind of footprints that move onto the timeline. But at the same time you listen to other materials with other behaviors in upper regions over this basic line. And it is exposed in a very interesting way.

KT: The analysis that you sent me was for me also very interesting, because of course you have certain expectations of a new piece and you have a certain approach and a certain method, and sometimes the analysis is a totally new view on the music. For me it was like if I was outside of myself. I was very interested in reading it, but I would not dare to say that I have produced the piece in that way. But I like very much to think of it in that way now, so it is a totally new perspective. The idea is to not have predefined expectations -in the sense of 'I want now a very high sound, and now very low sounds', and so on-, but to put sound transformation itself as something that causes the sense of development, so the way that you go while listening to the piece is that you go to different places because the situation is transformed.

AA: *Yes, this is the basic difference when I listened to your previous pieces, 'Crosstalk A & B', and even in 'Zeitraum-Ort-Zeichen-Sterne' as well. In these pieces generally I find that you work different structures within different spaces. Music is defined according to different spaces, which are interdependent, but isolated, let us say. There is a kind of impulse in the music that proposes an entire homogeneity in this way. In this specific case, 'Lustre' was created from very different treatments: one of them is the continuity, the seeking of some materials, which use very diverse spaces – it is a kind of imaginary space, I do not know how to describe it-. But at the same time it is very continuous.*

KT: 'Zeitraum-Ort-Zeichen-Sterne' is a piece that is very difficult for me to think of now, because for me it was really a very different situation, but 'Lustre' is quite successful for me. Actually, what I managed to do now, it is what I always tried to do, but it never worked to make the development of the whole piece in that way. So, I still have to figure out myself why I managed to do it now, and not in the previous pieces. So, basically if I have this gradual development, there was always a moment where it started to bore me, and then I just made a big cut and I go to a completely new situation. And now, for some reason there was no need to do it, I just could go on with gradual developments. And I was astonished actually; maybe I just was lucky this time, or maybe I have really learnt something, I do not know yet, I have to find it out.

“The idea is to not have predefined expectations, but to put sound transformation itself as something that causes the sense of development.”

AA: So, it is very 'on-the-road' piece.

KT: Yes; for me on one hand it is completely recognizable as something that I have made myself, and on the other hand it is really a new vista on possibilities. But maybe you noticed that there are also abrupt cuts, but they are always inside the structure, not that they give you the sense of a new section. They just are ‘small-scale’ articulations.

AA: I have observed exactly the same on articulation. You can fix different levels of articulation, let us say, because you note while listening to the music that something is in constant movement, but at the same time there are differences in very concrete moments of the piece. It is very interesting and probably very difficult, because when you are trying to make something very continuous, at the same time the first question is how to achieve some variety in the discourse. In general terms I think that is a very problematic situation. At what point it is necessary to put a little different design in order to establish a more renewed situation within the discourse? That is the question. But, if you like, let us continue with the interview. How did your own practice as a composer begin in the Analog Studio? Did you first study composition, and then jump to the electronic practice?

KT: No, it was totally the other way around. I entered the old Institute of Sonology at Utrecht in 1981, so that was 28 years ago almost, and it was a very interesting situation. I was at the School for Graphic Design and Photography in Amsterdam –low level, it was not an art academy, but just a ‘grafische school’ as you say in Dutch. It just was basically a school where you were prepared to become somebody in the world of printing, reproduction photography. I learnt all the really old fashion techniques: reproduction photography, even putting text together with these small letters of lead, typography, a bit of perspective drawing, binding books and these sort of things. I was almost finishing there, and I had always been looking forward to not going to school anymore. But then my mother said: ‘In the Conservatory of The Hague there is a new educational program starting for the recording of music’. They called it Music Registration, recording techniques. I was always experimenting with tape recorders and so on, playing electric guitar, recording the sound of the guitar on the tape recorder, making layers and transposing and adding sound effects. So, I said ‘Maybe that is interesting, I will make a phone call to the conservatory here’. I got a person on the phone –I had not idea who he was at that time-, but now I am very good friends with him: Dick Raaijmakers. He was in charge of that educational program that was starting, and he said to me: ‘Well, according to the things you told me, you should go to the Institute of Sonology’. So, I went to Utrecht. I made a phone call first, and then I had somebody else in the phone. I also did not know him: he has Gottfried Michael Koenig. Well, he said: ‘You can come’. I came and looked at the studio, he showed me around and he had a talk with me, so I enrolled for the course. And then, I started to learn analog studio techniques in Utrecht.

“I was always experimenting with tape recorders and so on, playing electric guitar, putting the sound of the guitar in the tape recorder, making layers and transposing and sound effects”

Of course, I could play piano a little bit, I could read notes, I knew something about music theory, but only at a very low level, so I was not entitled to say that I could compose, nothing at all. Working in the studio was something that I felt very comfortable with. I just was very inspired by the people that I saw around. I thought that technically I could do a little bit better than you or you. And the teacher that I had there, Jaap Vink, noticed my talent, so to speak, for this kind of studio work. So, I could stay another year, and then I was not a student anymore, but I just was told that 'If you want, you can use this studio'. So, I went there and tried to make some pieces. You would not want to hear them now.

AA: Why not?



Kees Tazelaar

KT: No, it is just nice sounds, but no idea about form, completely naïve in a way. But people there said 'You are doing something interesting'. So in 1983 or 1984 I had suddenly a piece in a concert, something was on the radio, so I thought that there was a whole world here, it was a completely new situation in a very spontaneous way. After some years, I started to feel like I was technically very skilled, but I was missing something. When you have a new instrument or a new technique, you can spontaneously do something, and that is very inspiring and attractive. But then, there comes a moment in which you say 'Now I want to make some development, I want to go one step further', and you do not know what to do. If you rely on this spontaneity, then you start to repeat yourself very quickly. So, I talked to some people there. That was actually a Spanish composer who was very important to me, Ramón González-Arroyo ⁽¹⁾, he lives in Madrid, and I am still in contact with him. He was at that time at Sonology, and he said: 'Well, if you want to learn more, go first to learn some solfège, counterpoint, harmony, just the basic skills for instrumental composition, because even if you do not use them, it gives you a kind of fundament, you would feel more secure also in that world'. I took that literally, and indeed I went to study some music theory.

In 1986 Sonology moved to The Hague, and I enrolled again for the course, because there were all kinds of new teachers: Konrad Boehmer, Dick Raaijmakers, Paul Berg. And while I was in the course I met Jan Boerman. I gave him a piece that I made, and he was interested in that, and he suggested to become his student. So, I started to study composition here at the conservatory. In 1993 I graduated, and then, exactly at that moment, Jaap Vink, who also was here as my former teacher, retired and I could take his position. I then became a teacher in the Analog Studio. So, it was not first composition and then electronics, but first electronics and then composition.

AA: In which aspects has the study in sonology changed since it moved from Utrecht to The Hague? What were the technical improvements and what are the differences of focus?

KT: In Utrecht, Sonology was part of the University. There was a staff of teachers and they had to teach some hours, and the rest of the week they were doing research, writing

publications and so on. Sonology there was particularly important, because already very early, in 1971, they had a very big computer for algorithmic composition and sound synthesis⁽²⁾. Koenig was working on his Projekt 1 and Projekt 2, and then very soon it was also for sound synthesis. And this is one of the reasons why Sonology is known through the entire world, because they had this big computer for themselves. But the analog techniques were still very important. In 1986, Sonology came here, and of course they brought the one-year course. But now they also had to set up a four-year educational program. From now on, the staff was only paid for teaching and hardly for doing research. It became more a school and less a research centre. So, I am still trying to defend the idea that we should have more hours for the teachers to do research-, because I consider it very important. Just around that moment, when Sonology came here, this whole revolution of the personal computer came. Computers became more affordable and people could buy their own computer, and it was very spectacular at that moment. You cannot believe it now, because today it is completely normal that everybody has a computer, but at that time there was no Internet, no e-mail, nothing! So, now it is the opposite situation: everywhere there are computers, except for this Analog Studio, which is completely focused on analog voltage control techniques.

AA: So, that aspect doubtlessly converts practicing music in the Analog Studio into a more appealing experience. Also, it allows you to link your practice with the roots of the electronic music tradition.

KT: But we have not only that. I mean, there is not only a historical interest, because when I became responsible for this Studio, my first challenge was that I should find something still relevant for the Studio to exist now. Not just saying to the students: 'This is a museum and here you can see how it was done in the past'. But you can say: 'No, we have now computers, and you can do fantastic work with these computers, but there is also something else that you can do with this equipment'. You asked me what actually I find so attractive about this studio: I think that the basic thing is that it has to do with time. It has to do with the sensation of that you are doing something on a very specific moment. And this is something that is completely gone with computers. You can read your e-mail now or tomorrow: it does not matter. But the moment in which you have a real envelope in your mailbox at home, it is much more sensational than when you receive an e-mail. Why is that? Also, when you work with sounds in the computer... there is something unrealistic about it, in a way that it is always a simulation of things. In that studio, it is real. So, it means also that if you take few hours to build a complex connection between all the devices there, then -if something happens- you record it on the computer or on the tape recorder. And you know that it is a unique event, you cannot repeat it. You can get close, but not completely, and in a computer, when you press 'play' or you press 'play' tomorrow, you get exactly the same. In this studio it is impossible. You can, of course, be very precise, but in a different way. Suddenly, I realized that there is something very essential of making music that is lost with this digital technique. It is exactly this sensation of the randomness, of the moment at which you are actually doing something.

“What actually I find so attractive about this studio: I think that the basic thing is that it has to do with time”

AA: *Because your reactions are really different.*

KT: Of course they are. And also when you hear the material back, you have some memory of the moment that you made it. This has influenced me so much, that now, when I work at home with Kyma, I try to simulate that situation. So, also in Kyma I make complex patches, and I play around with the parameters until I have something that I like, and then I record it. I do not say 'Save, done until tomorrow'; but definitively, it is done. At that moment, I make a recording, and then, when I make sound transformations, the same situation is there. So, I use it quasi-analogically. The actual moments that I work on the material are very important; they have to be moments that I am very aware of things,

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and not just staring at the screen. A really active musicianship is there at those moments. And it is contradictory, because you would say: [*Exclaiming*] 'Ah, if it is just what you want, why don't you make live electronic music?' But this is a different situation. It is like being a sculptor. When he has a big block of marble and he cuts off pieces, he cannot put them back: it is impossible. It is a one-way direction. There is no undo button in the sculpture's workshop. I think that this is the essence of the analog production technique.

AA: *Another question. Do these kind of actions, which the analog devices allow you to execute in real-time, have an influence on your ideas about spatialization? Do they have an influence on the idea you have about how to spatialize the sounds on a four-channel tape or something like that? Do you behave in the same way as, for instance, you were working with sounds in the Analog Studio, with the same level of spontaneity, or on the contrary are you much more a time maker at that moment? How do you deal with spatiality?*

KT: Well, I would not say that the way I spatialize sounds is specifically analog or digital. I have a deeper idea behind it. Actually, it comes from an attitude that I have towards sound synthesis. In that, I have been very influenced by Koenig. In Cologne, Koenig used to be the assistant of Stockhausen with the production of 'Gesang der Jünglinge' and 'Kontakte'. Koenig was disappointed –it sounds a bit straight, because of course he was the first person to say that 'Kontakte' is a fantastic piece-, but still here he had some disappointment. The disappointment was that Stockhausen wanted to compose the inner movement of the sounds. He had written texts about it and Koenig had actually understood him –I mean, this is my interpretation of the story, this is something that you can say: 'Ah, where is the text where Koenig says it!' This is my own understanding about this historical situation, let us be clear about it. But I think that Koenig actually understood Stockhausen in a different way, because Koenig thought that, what Stockhausen had wanted, was that the internal fluctuation of the sound should express the form. And –what Stockhausen eventually did- has nothing to do with it. He had the sounds on the table, literally on the table as fragments of tape, and then he put them together to create the form. Therefore, if you look at Koenig's 'Essay', for instance, a piece from 1957-58, he actually was closer to that utopian idea of fluent sound structures that express form. Then a very big moment came for Koenig, also historically, because it

was the last piece that he would make in Cologne, that is, 'Terminus', from 1962, where he started to compose on the basis of what he called a 'variable spectrum'. Basically that is a mixture of glissanding sine waves... snakes! ⁽³⁾ [Laughing both] He used that material as the basis for sound transformations; and those transformations are very primitive still: ring modulation, filtering, transposition, chopping, amplitude modulation, reverberation... just the basic elements of the Cologne studio. Now, every time that he makes a sound transformation, the variable spectrum is transformed, the result is transformed again, that result is transformed again, and so on and so forth. Just in the same way that you have a child, and the child gives another child, and that child gives another child. After the whole production process was finished, he had a family tree: variable spectrum on the top, and then all the transformation results in the stances. And then, he makes the form of the piece by walking a route through this diagram. That is itself already very nice. But what he basically does is that he does not anymore punch the sound in the form, but he turns the sound transformation itself, into the thing that generates form. With our modern techniques, I mean, the possibilities of voltage control and so on in the analog studio, you can get to that ideal situation much better. Basically, what I demand from configuration in the analog studio, connects with this: it is not only that I get a few nice sounds that I can put in a form, but that the configuration itself generates a piece of form.

“Koenig was closer than Stockhausen to that utopian idea of fluent sound structures that express form”



Kees Tazelaar during a lesson in the Analog Studio at the Institute of Sonology, Royal Conservatory of The Hague in 2006 (source: Charles Celeste Hutchins).

AA: That is really interesting...

KT: And these pieces of form are then combined in the large form of the piece. The combination of all those results, generates, you could say, polyphonic elements, communication between layers, or as you say, the sensation of developments at different time-scales, and so on.

Now I come to your question. It is very interesting to have a similar approach to the spatialization of sounds. Sound synthesis should not only generate the sounds. No: it should generate sound forms, and the sound forms that I have generated by sound synthesis then should not be spatialized in a later stage, but they should have a spatial quality on the moment that they are synthesized. So, the sound form must have its own unique spatial behavior. That is my dream. Sometimes that dream can be realized; you can get closer one step. It is conceptually interesting, by the way –you maybe have read a little bit also about Raaijmakers' *'Canons'*, where he is focused on time articulation...

“The sound form must have its own unique spatial behavior. That is my dream”

AA: *Actually there is a quotation of these 'Canons' in your 'Zeitraum-Ort-Zeichen-Sterne', I guess...*

KT: Yes, exactly! The idea of Raaijmakers is that he says: 'Ok, I want to find a very elementary sound material and I want to find a very elementary compositional model.' And eventually he finds that the most elementary sound material that you can use is very short electronic impulse, and the most elementary compositional operation is to repeat that impulse. And he finds that by being very precise in these repetition patterns, he can do all kinds of things. You must imagine that this is early 1960's, so it was done with tape recorders, in very complicated ways of copying tapes and copy, copy and copy until you manage to superimpose these impulses into the densities he imagined. If you do it in a regular way you get something like a pitch, and if you do it in an irregular way you get more noisy sounds.

If you look at the work by Miguel Negrão, for instance [*Speaking about Miguel Negrão, a Portuguese sonology student who is currently completing a MA Thesis at the Institute*], he works with Wave Field Synthesis. And he actually does what my dream is, in the sense that he has synthesis models that are directly generated in the Wave Field Synthesis system. So, he does not go to the system with his sounds, but he generates the sounds with the system. And now the fantastic thing is that he works with his volumetric sound objects, and the sound material for his volumetric approach is a sound that is constant and endless. So, with Raaijmakers the ultimate time articulation is an impulse with no duration, and the ultimate space articulation of Miguel Negrão is the opposite, where the sound is completely continuous and static. For me, the area of which these are the extremes -the impulses of Raaijmakers and the volumetric static objects of Negrão- is a space again. It is a space in which you really can move in. So, the poorest option is to have a sound and a joystick and to move it around like you are turning on the washing machine. This use is the most horrible thing you can imagine, from my point of view. It is as you were in a fair, within the roller coaster or something like that, a Hollywood jungle.

AA: *I understand; it is not an idea that you can deal with in a very primary level.*

KT: No.

AA: *Instead it is better do it almost in a spontaneous way or in a premeditated way, but always on a deeper level. Otherwise, there is no mystery.*

KT: Exactly.

AA: *Let us tackle another point. The grade of ductility that you use while you create each specific sound structure –something that is tremendously difficult in electronic music- informs us that the quality of musical material represents a very important issue for you. Are the time articulation and timbre totally separated from each other, or on the contrary is this an inseparable meeting of contraries?*

KT: That is again something that for me has been answered by Koenig, because he says that instrumental music articulates time, and electronic music articulates timbre. You see, time in instrumental music is something that is there; you hit a drum or a piano and the sound goes away. And in electronic music the sound is continuous. Even if you walk into the analog studio and if there is not any connection made, the oscillators are working! You only have to put a cable and then you hear them. They are constantly making sound, in a way. Metaphorically speaking, all the sounds that you can make are there already. They are existing already before you hear them. So, the timbral fluctuations of the sounds should express the form. So, you do not ideally make separated sounds and put them in the time, but the time is the result of the ways that the sounds move.

AA: *Ok, another question. Your pieces are characterized in general by their long durations.*

KT: Well, what is long?

AA: *Around twenty minutes, twenty-five; perhaps an hour. Are you comfortable with these timings?*

KT: Yes.

AA: *When do you know a piece is completely finished? Are your last considerations these spatial/behavioral distributions we discussed some minutes before, or...*

KT: *[Interjecting]* Well, when the material is exhausted. I do not find that my pieces are so long, actually. You know *[Joking, but circumspect]*, what I find long is a football match: two times forty-five minutes. And then, they decide not to go home: two times more of fifteen minutes, and then the penalties. I find that very long. Twenty minutes for a piece of music for me it is not long. Especially in electronic music, I always try to create a unique sound world for a new piece. Of course, they can be similar –you can say, ‘Ah, this is probably Tazelaar’s business again!’ But still I usually make everything uniquely for a new piece. So, that means that you are not going to listen timpani, trumpets and pianos, but

you are going to listen a totally abstract sound world. [*Short pause and exclaiming*] You need time to be able to find your way coming to a new city! I am not as a tourist that comes to The Hague or Amsterdam ten minutes with his video-cam and then goes to the next destination... I want my time.

AA: But I was curious, because they are different timings. Actually I have the impression not only with you, but also in general terms, with a lot of acousmatic composers, for instance, what they really need to express takes a lot of time. That is the point. It is necessary for this music that your own listening gets calm, let us say, gets familiar somehow. But in this concrete way, I was very curious about your own focus on that. This leads us ahead to speak about 'Zeitraum-Ort-Zeichen-Sterne'. What does it mean?

KT: Zeitraum just means 'time-space'; Ort is 'place', Zeichen means 'signs', and Sterne means 'stars'. Actually, how the title came together is just an anecdote, because I started the piece when I was in Berlin. For the students in Berlin they just get the schedule for where they have to go for the lessons, and the Zeitraum is just the space for instance between ten o'clock and twelve o'clock, and Ort is the room. But I liked it very much because 'Zeitraum und Ort' also means another thing that I liked ['Period of time at a specific place']. The piece that I worked on there I called-'Zeitraum und Ort', just as it was written on the schedule for the students. But that piece was not what I really wanted to make. It was actually much longer, about forty-five minutes, and it was in a way a bit depressing.

AA: A depressing piece?

KT: Well, actually I was enjoying my time in Berlin very much, but for some reason the piece itself was very dark and heavy. So, I left it for what it was, and then I was working on something else at home, and I used a title from a poem by Georg Trakl, who was an Austrian poet; that was 'Zeichen und Sterne', meaning signs and stars. I combined the material from those two pieces later. And you hear also in the piece very clearly that it is actually two pieces. There is a break and then there is a different landscape.

AA: This music represents a situation in which there are two sections faced each other.

KT: I liked, within the context of the piece, to go somewhere completely different; so that everything that you have before in the piece gets a totally new context. You listen to the piece, and then something happens that makes everything you listened to until then appear in a new light.

AA: *I am very curious about the use you made of pitches.*

KT: Yes, that piece was very much oriented on pitch.



The Analog Studio of the Institute of Sonology at the Royal Conservatory in The Hague

AA: *I think that the utilization of pitches you did is effectively integrated within the sound structure. Obviously you notice that some strategy about pitches is occurring there, but it is hidden. What was the concern you had when you were composing it?*

KT: In many pieces of electronic music pitch is not a parameter that gets a lot of attention, which is ok, but on the other hand it is my personal belief that when pitch is there, it is a primary characteristic of the sound: it is historically charged. It is again Koenig; I must be honest about it. It is something that for the listener is the most apparent aspect of sounds in the context of music; pitch is a very clear for an educated listener, someone who comes from a musical background. That is my audience, I hope. The point is, if you have two pitches, you are in a situation –that is how I feel- where you are forced to deal with that situation. And also very important, I want to avoid the notion of functional harmony: that should not happen. So, the obvious solution is to work with a more serial technique, for instance to have a row of twelve pitches that is organized in such a way that you do not get I-IV-V-I or something like that. In electronic music that is the most horrible thing you can imagine. Even if you come across it by chance, that is why I mention this historically charged aspect of pitch. If you look at Projekt 1, this algorithmic composition program by Koenig, you see that he has random operations for all the parameters, but for pitch there are more conditions. He says that for pitch you need to make sure that things are dealt with in a certain way, because it is a parameter that is

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much more on the foreground than the others. So, he organizes pitch by defining interval pairs. And the interval pairs are limited to the interval pairs you can use to make twelve-tone series. Of course, I do not use twelve-tone series in the way you use them in instrumental music, if you look at some string quartet by Schoenberg, where the series could be used completely in one bar or in two bars. For me it might take a few minutes before you have all the pitches. But

still, it gives you a kind of way to deal with the pitch orientation, in a way that you avoid these reminiscences of traditional harmony. In such a series you can work with the width of intervals. Specially in this 'Zeitraum' piece, I do not remember exactly now, but I think that in the first movements the twelve-tone series takes few minutes to completely go through, but in the beginning the intervals are very wide –thirds, fourths-, and this gives you a very open, optimistic atmosphere, and then, towards the entire section, it becomes more and more narrow. And you feel in a way that you are sucked into something; it becomes more claustrophobic and so on. That is completely caused by the interval construction, and also it has to do with the selection of sounds. This is how I work with that. In the third part there is a new series of twelve pitches that controls the sounds, and in the last part of the piece the pitches are used to make these blocks, a kind of chords, but every time with the same interval constructions.

AA: Let us speak about your conception of form. In this piece, 'Sterne', and also in 'Crosstalk A & B' there is a very peculiar idea. I think nobody uses these kinds of musical forms maybe since the Middle Ages. I mean, using the Bar form, that is one of the simplest forms. This is the idea of using a simple material, for instance A, and then repeat A, and then repeat it again and so forth. I think this kind of reaction occurs in 'Sterne' when you use this very agogic accents within the material: all the time there is a very big accent and then it disappears in very different ways. One finds this routine along your piece. I think this kind of strategies unify very well the music in a very simple way, let us say, but at the same time it is very complex. These are the structures I named 'snail's shells'.

KT: I am not sure if I am doing that very consciously; it could also just be my limitations.

AA: It is clear that there is intentionality about dealing with different split materials. Maybe because of this quality, this intention on attacks or intention on the material's responses, something very interesting is achieved in terms of form. As a listener, I appreciated that... I would like to incorporate into my own language something like that, because it is very simple and at the same time very effective and also allows you to express maybe a big amount of things.

KT: Well, you see, in the beginning of your interview I have said a few things about people that I have learnt from, teachers that I had: Vink, Boerman and also Raaijmakers, who never was officially my teacher, but I have spoken so much with him. He was a big influence. Koenig was a big influence; Konrad Boehmer was an influence. But I have learnt absolutely the most from listening to music. These are things that I just have found to be present in the music that I like very much. And that is when you have talked about Middle Ages in music. I think it is something that is present in Beethoven. The late piano sonatas by Beethoven, his strings quartets, all those elements that you describe, I think I have taken them from there, not just by studying the scores, but mostly by listening to them very frequently. There are pieces by Beethoven that I know by heart completely. Just starting to think about whatever of these pieces, I can go from the first note to the last one: they are all of them in my system. And with contemporary music it is the same. I think that it is something that you hear in Xenakis a lot. You would not hear Xenakis

talking about Beethoven very often. The clearness of introducing new materials, just the sense of the right moment to do that: that is what I always have been interested in. But again, I have no proof for that.

AA: It is very interesting, and your remark about Beethoven ... I thought something similar in such a way, about the sense of organization in music. Maybe this is one of the most terrific things that a composer could achieve. This sense of organization is the most difficult thing, perhaps, I do not know. Actually, nobody has expressed it in such a way as Beethoven. In general terms, people believe that the structural conception of music is something more complex in the principles, and maybe it is totally the other way around: simpler and something that you can develop later from the beginning.

KT: It is possible; this also has to do with something that Jan Boerman made me pay attention to. Very often people pay a lot of attention to the beginning of sounds, or how a phrase starts, but how they end is something that is usually taken for granted. If you have something that suddenly stops, then something new begins. You can have two ways of articulation: you have the articulation of things that begin, but you also have the articulation of things that end, in a very clear way. Sometimes even in a non-elegant way. There can be things that do not end very fluently and gentle, but just... [*Exclaiming and gesticulating at the same time*] it is gone!

AA: For me that is tragic. As a listener, when I hear these drastic cuts, those are moments with an important charge of pathos.

KT: Right. Well, I felt very inspired while answering your questions.

- (1) Ramón González-Arroyo is a Spanish composer of instrumental and electronic music. He has worked and developed artistic projects in different European institutions from the 80's, such as ZKM in Karlsruhe, IRCAM in Paris and the Institute of Sonology in The Hague. There, he collaborated with G.M. Koenig on the PR1, PR2 and PR3 programs.
- (2) Kees Tazelaar surely refers to the PDP-15 computer, brought to the Institute of Sonology at the University of Utrecht in 1971.
- (3) He is referring as snakes to Arranz's idea of seeds. For further information, check www.angelarranz.com on sinusoidal deconstruction.