**Appendix 2: Interview with John Psathas, London, 22 March 2018**

*AM: Which DAWs do you use?*

JP: I’ll tell you the history. When I was a student, in 1988, I bought a *Roland MC 500*. All it did was sync up MIDI data. If you look them up, they’re an incredible thing to think about to use these days, because of how limited they are. Then eventually I bought a computer - it’s always been *Macintosh* - and the first piece of software that I started using on that was *Mastertracks Pro*, which was a sequencing package. They were quite different from these days; they worked differently. And then I got into a thing called *Easy Vision*, where things became more flexible, and that was a baby version of something called *Studio Vision*. And *Studio Vision* started to have some audio things in it as well, but not many. It was all about MIDI information and libraries. And then I made the big step, because I got a really big project commission. It was the Athens Olympics. And they said: 'Look, we want you to work in *Logic*, because we’re doing everything in *Logic*.' The only project I've been involved in where they did all of the scores in *Logic* as well. And they had all of the audio, the MIDI and the scores completely lined up on huge screens that they had put together, so you could see all the information. 2004 were the Olympics, so I started 2003 working with *Logic*. And it was a very hard programme to learn at the time for me, but I got into it and I figured it out. And since then it’s been only *Logic*. And while I’m here now [London, March 2018], because I have a bit more spare time, I’ve started going through all the *Pro Tools* tutorials, and I’m teaching myself how to use, or I’ve been taught by these tutorials, how to use *Pro Tools*. Because I want to shift, which I’ll explain in a minute, into a more audio-based environment for some things, and less MIDI. But generally my composing journey from the very beginning, as soon as it was available, was to compose using MIDI. And the reason for that I think, no, I think I know, is because I can really only compose in a feedback situation, which is to hear what it is I’m writing, as I’m writing it. And I can hear past the really bad sounds, and all of that sort of performance issues that you get in MIDI. I can hear past that and still get excited, because for me the composing process, it’s a very sort of visceral, live, responsive experience. And I’m always very excited when I’m composing. It’s a very intense, always a very intense experience. It has never not been that. And, you know, it’s been described as, for some people composing has been described as slowed down improvisation. Because you’re playing and you’re hearing it back and you’re responding to it – it’s like there’s another person and you’re responding to what you’re hearing, at the same time as making it. That’s definitely it for me, you know, very very intense. It’s the most intense experience I’ve ever had in my life, doing anything. But I haven’t done many things [laughs]. So I have a limited palate. But the thing is that the journey with the softwares has been very interesting because it has really been a process of getting older, having a bit more money, computers getting better, and more capacity. So the libraries have been growing and getting better, and the way that they respond has been getting better and better. And so my experience of the creative process has actually been intensifying as I moved through time, in response to the technology, being able to do more, and be more realistic and more life-like. So it’s always really been *Logic* for me. And *Logic*, I really hated it when I started, because it was so different from everything else.

*AM: What did you use before you went digital, so to say?*

JP: Well, the thing is, it really started when I was a student. You know, that’s when I started using this *MC 500*.

*AM: So you never composed at the piano?*

JP: I did a little bit when I was a student. There’s one piece I’ve written at the piano that lives today, and that’s a solo piece called *Waiting for the aeroplane*. And it still gets played. It’s the only piece I ever really wrote at the piano. What the thing is for me, I really really need to know what it sounds like. I can’t do this thing as a lot of my students do. I understand as a student it is part of the way, and it can be part of the way forever, which is, I’ll find out exactly what it sounds like when people start playing the music. And for me, that’s not my way. My way is that it’s really about the journey from the beginning to the end of the work. What is that journey and what is that experience?

*AM: So actually, in that piano piece that was case because you played it?*

JP: Yeah, and I played it you know, and so it’s actually a very playable piece – one of the most playable pieces I’ve written, except for one part which I’ve never been able to play. It’s beyond me. And the thing that I can say is that everything I’ve written since I’ve started using the technology, as a musician, as a player, I can’t play any of it. It’s beyond my performance capabilities, all of it. But what happens is, I have a situation at home where I have a studio there, and I have an acoustic piano. I have quite a complex computer set-up, with three really large monitors and a lot of capacity, a lot of libraries, and then on the other side I have a really nice electric keyboard. And what I’ll do is, I’ll go to the piano and work through things very a-rhythmically and non-structurally. But it’s really to get the feeling of, what does it mean to move from this harmonic situation to this harmonic situation, what does that feel like? And I’ll make a lot of noise and be very clumsy, but I’ll feel kind of the underlying essence of things. And then it’s, how does this come into focus, how do I turn it into something? And that’s when I’ll go to the computer and I will start.

*AM: And then you play MIDI into the computer?*

JP: Most often I will enter notes with the mouse, one by one, yeah, really slowly. And for me, there’s a very slow exacting process. Because the thing is, the technology can give you all kinds of shortcuts. But I’ve never used it for that. I’ve never used it for the copy and paste or, you know, just the easy way of manipulating. For me it’s always been a way of, OK this note, then this note, and then I’ll try this note and see what happens. And then I’ll listen to it and I’ll make a decision about it. And I’ll crawl forward through the work.

*AM: So you’re a slow worker, in that sense?*

JP: Slow, because of one reason, I think. And the one reason is that I always start at the beginning. I don’t know what happens in the middle when I start. I don’t know how it ends, when I start. I don’t know any of that stuff. And the writing is a process of discovering what the work actually is. That’s my way of approaching it, right. So I never know where it’s going. And there have been a couple of times, for various commission reasons, that I’ve needed to kind of map it out and create structure and so on. And I’ve enjoyed that way less than the way that I normally do. Because, I mean, this is getting into, I think, my underlying motivation for writing, which is that… You know, in my opinion, when I hear music that I think is great, like it’s beyond good but it’s great, and that could be a free improv session, it could be a symphony by Beethoven, it could be a Nubian oud player you know, whatever, where it sort of transcends something, and it becomes… It sort of transcends time and place, and style and genre, whatever, what I hear in all of that… My way of describing it is that the creators of that musical experience themselves experienced a kind of revelation in the making of it. But not just that. That revelation that they experienced, the energy that manifests because of that, somehow is coded into the music. So that when you hear it, no matter how many times you hear it, you feel that thing that’s in there. You know, that relevatory experience that has been encoded. I mean, you can definitely hear it in the best moments of Beethoven. You can feel him going, oh my God, as this music is being discovered. And so for me that’s… You know, I’ve got attached to that. And so that’s why I’ve always started at the beginning. And every piece for me has been this amazing unfolding of discovery. And there are things in my pieces that are awkward and clumsy and that don’t quite work, because I’m just trying to make it, unfolding as well as leading. And this leads all the way back to… I think that the technology has been incredible in enabling that for me. Because I can keep hearing over and over again where it’s going. And also, obviously, it has really shaped the way the music is formed, and the way my music has evolved over these decades. Because I’m in this environment. I’m in a kind of virtual reality type space that has its own boundaries and its own strenghts.

*AM: I feel, and that is something I state in the introduction to my research work, that for me the Digital Audio Workstation is like an imaginary performance space. Would you agree with that?*

JP: Absolutely. That’s very much what it is for me. So for instance, when I work, curtains are always closed you know. Everything is shut to a dark cave that I work in. And I am performing when I compose in the sense that I will extend the work a certain amount, and then I will press play and I will go to the back of the room and listen very intensely, and very loudly usually, and be moving around a lot, I mean almost, not dancing, but physically moving around with the music, and engaging with it in that way. And I guess that myself and the software were performing the music together at that point, to each other, to see what will happen next. It absolutely feels like that. And you know what it’s like, if you work with something for so long, you become really fluid in the environment, and all your keyboard shortcuts, all of that sort of stuff…

*AM: So there is a virtuosity in that?*

JP: I would say, for me definitely, I’ve arrived at the… yeah. It’s interesting, because both of my kids, they’re into music in a big way, and part of their journey recently was to get their own copy of *Logic*, their own laptops and so on, and for me to show them around the software. And I went crazy at how slowly we had to move through the environment. And they didn’t have these keyboard shortcuts that I’ve built up over twenty years now, or fifteen years, where you can navigate so quickly. Even just managing, you end up managing every aspect of it, like how your libraries function, and the whole backing up and the undo process, all of those things. To be able to jump back in time, to something you were thinking about. I mean, twenty minutes in one of these environments is a long time of creative work, you know. And to be able to go back and look at that and just compare it. And now the new *Logic* has this incredible new feature, incredible for me, which is, it has project alternatives, and it has track alternatives. And I realise I’ve been waiting for that for so long, this idea of forking the creative process where you think, I really wanna try this out but I don’t wanna waste a couple of days if it’s gonna be useless, and then backtracking. So you can just park the work and then go off on this tangent. And you don’t have to create a new file, you don’t get caught up in all of that stuff. And you can just very quickly compare between different alternatives of the work. And not just that, but within the projects now, within an environment of *Logic*, every track can have multiple alternatives. So you can try different ways of expressing a part within a texture. So that’s the next step in terms of the creative journey. And it just keeps opening up and becoming more flexible.

*AM: Do you feel that concepts that you develop musically really rely on the [technological] possibilities? Or, for example the* No Man’s Land *project, is that something you could have possibly done in a different setting?*

JP: I don’t think anything I’ve written since starting working with technology, I would have made. Because the thing is, I was actually thinking about this today, walking around. So I’m reading this incredible book, which is *Second Hand Time* [by Svetlana Alexievich]. It’s really incredible, and it’s just a long long series of long interviews with people in Russia, before, during and after what happened in the nineties. And it’s really one of the most extraordinary books I’ve ever read. But what I was thinking about was, I’ve read a lot of science fiction, like all of the good stuff, I’ve read it many times, and even some of the really badly written stuff, because of the ideas that are in them. And so I’m always leaping towards things that I don’t know. I want to know things that are beyond my own imagination. And the reason I think I’m responding to this book so strongly is that it’s hyper-real. It’s deeply disturbing me, you know. These are things that I could never have imagined. I would never have thought these things happened in the life, in the world. And that’s the same with writing with the software, because it enables me to go way beyond anything that I could play, for one thing. And especially rhythmically, like the relationships and the things you can do, and you don’t have to physically be able to do those things. And the other thing is, texturally but also structurally, being able to hear large shapes, and decide on whether they work or not, whether they’re strong, or whether they can be moulded in a different way. I could never have imagined the stuff that I’ve written without being able to hear it. I think that’s the core of it: being able to hear it, and make your decisions, make your choices, not just imagining it. There is some music I wrote, when I look back, when I was a student, there are pieces I wrote when I didn’t really know what I was doing, in the sense that I wasn’t really sure what it would sound like. And sometimes I wasn’t sure at all what it would sound like. And then nice surprises, you know. It’s like the unknown, and you hear the music and you go wow, that’s really interesting. But I never felt like I owned it. And that’s the thing, that I really feel like what I create now, it does come out of me, because I can hear it and respond.

*AM: So obviously composing and performance hang together. But how about production? When you finish something, is it ready?*

JP: There are mutiple levels to that. One is that, as the libraries got better and better, for me the MIDI demo version that I would create became more and more, I suppose, acceptable as a final result.

*AM: So you do dynamics, and you do balancing, and you do panning…*

JP: Yeah, oh yeah, very detailed. The detail that I’m going to with the MIDI literally takes all the time. It’s creating something that is convincing enough for me to feel the music, to actually feel what the music is doing. And so, lately what has been happening is… And the other thing is that, because handing the music over to players, especially if you write music that’s difficult, it’s such a roll of the dice. And you don’t quite know what you’re going to get - that I realised very early on. I needed to make kind of results for me, so that I could walk around with my headphones on, listening to my music, in a way that I felt good about it. So I put a lot of effort into that. And until I get a performance… You know how it is, you can write a concerto, and it might have been a commission, but the performance might be two years after you’ve written it. And until then I need to keep living the work, I need to hear it.

*AM: And do you feel that, because you produce a piece until it’s almost CD-ready, and you then give it to performers, that it’s very hard for them to get up to that level?*

JP: Absolutely, yeah, yeah. It’s interesting, that’s a very important question for me, because I’ve only just started to realise that quite a bit of my interaction with performers has been shaped by exactly what you have just said, which is that it’s never quite good enough. Because I have this kind of perfect, pristine vision. Except that, often what will happen is, performers that can play it, they just totally breathe the life into the whole thing, and it becomes something way way bigger, you know, and much more valuable.

*AM: Always?*

JP: Not always, no no. I feel very lucky, you know, in that I have… There’s a piece I could show you which… You might even know it. It’s a marimba solo with backing track called *One Study One Summary*.

*AM: Sure, I do.*

JP: Yeah, and the thing is that so many people are playing that now, but when it started…

*AM: Many of my students in Amsterdam play it…*

JP: Oh really? It’s having such an amazing life. But the thing is, when it first was made, the response was: ‘Man, this is too hard, you know. This is crazy, and there are no breaks, you’re just playing all the time, and the concentration…’ And now it has just become almost like a standard, right? So the thing was, when I first wrote that piece, it was written for Pedro Carneiro, and Pedro, you know who he is. Do you know him?

*AM: Yes, sure.*

JP: I mean, I really admire Pedro, I love his playing. For me he’s a fantastic musician. And the thing is that he got this piece, and he spent ages, because he’s really committed, and there are just a few things that weren’t playable, because I had written impossible corners. And the version that your students are playing has had a lot of things made easier from the original that I wrote, the marimba part. But Pedro didn’t have that luxury. He had to learn my unknown useless marimba ignorance about all of that. The thing that I realise in retrospect is that I was way too unforgiving towards Pedro. Because he was basically, I mean he’s fantastic. And so if there’s something that’s really really awkward for him, it’s really really awkward [laughs]. It’s not like he’s not trying hard enough. It’s just that I don’t know the instrument. And so - this is still answering your question - I think, looking back, and to be honest, I don’t want to think about it too much, I think there’s been quite a bit of me being dissatisfied for the wrong reason. Because I’ve just had it easy, you know. I wrote a saxophone concerto for an Italian, Federico Mondelci. And there’s a bit at the end where it just goes into the stratosphere, five, six ledger lines all the time. And he’s supposed to play really quiet, and really loud, and I was really dissatisfied that I never really heard what I wanted to hear. And that’s kind of it: I’m not hearing what I wanna hear man, but in fact…

*AM: So the library can do it.*

JP: Yeah yeah yeah. And it’s such a basic mistake, it’s so obvious. You think, well, come on, find out what is impossible. Do that, with an acoustic instrument, go and find out. But I get so excited in the writing that I think, I really want this, I really hope it’s possible. And then I would send it out. And what I learnt, after a very long time, is that the performers I have dealt with have been incredibly conscientious, have been really determined to give me what I want, really, I think too much in that way, rather than saying, ‘Dude, look, come on, we just need to talk about it. Let’s look at what other options there are.’ Very few people ever did that with me, and I think they should have. Because they were too generous, too kind, too scared, I don’t know what it was.

*AM: Did you give them the MIDI version, sometimes, or always?*

JP: Yeah, always.

*AM: So they had a frame of reference. So they loved those versions probably as much as you did…*

JP: Yeah, except they would have listened to them thinking at certain moments, they will have been going: ‘Oh my God [laughs], really, is that what I’m going to have to do?’ There would have been that. So there’s been a big long learning process for me. But no matter how much I learned, the one thing that doesn’t change is that when I sit down to write I just get super excited. And I just write what I want to hear. But what I do now, what I never used to do - incredibly, it’s so ungenerous of me in retrospect when I think of it - is, I would never send bits to people and say: ‘Hey man, this is what it sounds like. This is a little chunk on paper. What do you think?’ It was really that I’m going to finish this piece, I don’t want anybody to interfere with it. Because you’re in this amazing universe of your own, with you and the technology, and you don’t want anybody coming into that. Because you have this amazing freedom, and that’s really what I think of. And if I move on from there now, – let’s say that that question has kind of been answered - the next step, because you asked me about production, is that for me, when I think of production, I don’t think of MIDI as production. I think of MIDI as sort of sequencing stuff. But production for me is the introduction of audio elements that are not MIDI into it. And I see that as one of three things: there’s your MIDI content, there’s the audio content (which is, let’s say you wanted to bring in a field recording), and then there’s your ability to produce, which is, how good are you with reverb plugins, how good are you with compression, how good are you at mixing, all of that stuff. I think of that as production. And that leads me to an example, somebody that I’ve been listening to a lot lately, which is Max Richter. Now when I hear his *Sleep* project. Do you know that project? So I’ve listened to that whole eight hour thing dozens of times. I really love it, you know. But what I hear is that his production ability allows him to have way fewer notes in his music. Because the way that he contextualises the instruments in terms of reverb and space and underlying pads, things that extend the actual notes that people are playing on the piano, or whatever, it has basically allowed him to be way more minimal in terms of how many notes per bar, the rhythmic density of his music. And when I compare that to what I do, especially the earlier music when the libraries were very poor, I had many more notes in my music, at much higher tempo. Because I was filling all the space with notes. But now that I’ve got somewhat better at production, and I use reverb and I’ve got better samples, and the piano library now will have sympathetic resonance and all other kinds of things, and the way the pedals work is much better, my piano writing has opened up.

*AM: But does that mean that when you then give the score to someone, and he plays it in a very dry theater, on a bad piano, with no acoustics, it suffers?*

JP: Absolutely it suffers, yeah. So I’m not big like Max Richter. I don’t have control over that stuff, because there’s also that element. But the thing is that is has impacted on how I write, because there’s more space in what I write. And there was something else, just going back a step, which is, I was talking about the MIDI version getting better and better. So for me, for a very long time it was just the MIDI. But as that got better and better, library-wise, and my sequencing got better, I introduced production. So, for instance, I started using reverb. And my MIDI stuff got good enough that… For instance, I wrote a piece for timpani and orchestra. It was a concerto called *Planet Damnation*. But the thing is, I put so much time in the MIDI version of that, that it now exists as a karaoke piece. Or I’m starting to call it digital concertos, because it’s a bit better than karaoke. That backing track is good enough now for someone to play it live. And there are more and more people playing it as a karaoke version. But the interesting version about it, the point to make, is that I never intended that. The technology kind of made that possible. And it’s of course getting a way bigger life through that than it is through being played with an orchestra. Because getting concertos played is tough.

*AM: Plus the orchestra would not be as precise, or you don’t worry about that?*

JP: Of course, yeah. And the orchestra is actually not that tolerant of the timpani at the front of the stage either. They’re not really enthusiastic about it. But even the saxophone concerto I wrote for Federico in Italy, I’ve just now released it as a karaoke version where the backing track is all MIDI and the saxophone player can play… And so this sort of digital concerto idea has become something that has led me to a whole new space in terms of composing. So basically the technology has led me, or we have led each other, to a space where pretty much everything I’m writing now is for live performers and backing track, so like *One Study One Summary*. And because of that it has opened up this whole new world of production for me. And I’m bringing in a whole lot of audio into my music now that’s not performed live, but that’s also not MIDI instruments playing a backing track. It’s other stuff. And my production abilities are getting better. But I always feel quite behind, which is why I’m getting into *Pro Tools* more, because I want to learn more just about audio and recording and editing and mixing.

*AM: Are you self-educated mostly?*

JP: Totally. Even in terms of orchestration, like writing acoustic orchestration for orchestras. I did piano and composition, and within the three years of my bachelor degree I essentially realised I’m not going to be a pianist, even though I got the degree. And I realised that what I wanted to do was write music. So I learnt that as an undergraduate, and then I went on and did postgraduate in composition. But those were very different times back then, you know. I did ONE paper of orchestration. And I’ve written a whole lot of concertos. And all of that stuff is really self-taught. And you can tell, you can tell when you look at it. It gets by, and it’s OK, but it’s not wizardry with the orchestra, by any means. It’s kind of functional orchestration that does its job. And that has also been impacted by, if you think about it, the fact that I’ve only ever written for orchestra using a DAW. And I’ve been essentially hostaged to the quality of the samples. And you can hear that through the music that I’ve written for orchestra. It goes from being incredibly busy, everybody playing a lot of notes - because that’s the only way you could make the samples work - to something that becomes more spacious, a bit more solidly conceptual. But if you look at my orchestral writing, there are almost, I think probably zero examples of extended technique. Because that just didn’t exist in DAWs. And so there’s none of that in there. There’s no space time notation.

*AM: So actually, when you go into notation, you don’t add things that are not in the produced version?*

JP: It’s all completely aligned, right.

*AM: But you may have written* sul tasto *or* sul pont.*, even though the library didn’t have that at the time?*

JP: Even though these days you do, but back then, yes, I would do that. I would probably try and achieve *sul pont.* with an EQ, or something like that.

*AM: And you would write a* Bartok pizz.*, or you wouldn’t?*

JP: I would, I would, that stuff I would know. I might add a little percussion sound with the *pizz.*, just so that I kind of feel what it is. These days of course it’s all there. But yeah, there’s a severe limitation in terms of my development, because of the software, no extended technique, no space time or free time notation, because I just couldn’t figure out how to do it with the software, in a way that I could control it and turn it into a score. There’s no chance…

*AM: Did you ever play completely freely in a regular meter, regular tempo, and then just export that? Because that, of course, if you leave all tuplets open, gives you very interesting notation…*

JP: Yeah, that’s right. So I did once a piano duo called *Motet*, in which I improvised at a MIDI keyboard, and recorded it, and then I brought it roughly into notation. But I used those beams, like you’ve got semiquaver beams that get thinner and they join, accelerating and descelerating. That’s as far as I ever went into that world. So you know, it’s a really interesting dimension; limitation, if you think about it in that way.

*AM: And so you notate in* Sibelius*, or…?*

JP: No, hand, still by hand.

*AM: Everything by hand?*

JP: Yeah, I just finished a new piece for snare drum and backing track [shows the score].

*AM: And so you send it…*

JP: to someone to typeset. And this is my score. I did it on one of these big excercise books. So that’s me just writing it out. It’s all fairly straightforward.

*AM: You always do it that way?*

JP: Always by hand, and by pencil, yeah. I’ve never done it any other way. And I’ll tell you, in terms of a career, because I was very lucky and started…

*AM: So you see it in Logic…*

JP: in piano roll. I never work with notation when I’m composing. It’s all looking at it, how it looks. And it’s interesting, even that development over time, now that I think about it. It used to be: I would write like ten bars, twenty bars, sixty bars, and know that it was OK. And then I would write it out. And then I would go back to composing the next… however, and then I would write it out. And so the score would just be slightly behind the software, the *Logic*. But now what I’m doing is, I forget completely about the score and I just write the whole piece. Just purely by sound, what I want to hear. But also keep in mind that at my age and with what I’ve done, there’s a lot I understand in my head about what’s going on in the music itself. I don’t need to see it to understand what’s going on. And now I write the whole thing out at the end, and then send it off.

But what I was going to say, just in terms of a career, intuitively, when I was younger - because I got commissions straight away, even at university, and it’s been continuous since I was there - I just figured out very young that it’s better to spend even up to half of the commission on somebody else doing the score, and get another commission. So what you’re doing is composing fulltime. You’re not actually doing composing, then typesetting, composing, then typesetting. I didn’t do that from the very beginning, but maybe after five or six years. Because back then you had to write your scores by hand with pen. And I did orchestral scores. Anyway, it was just terrible, a terrible sort of time. But the one thing I like about writing it out by hand in pencil now, still, the reason why I won’t ever stop doing it, is, it makes you consider everything all over again. Because when you work with software, even though I don’t copy and paste (I never do it; performers really complain: ‘Don’t you repeat anything?’) I work incredibly quickly. And writing it out by hand is a way of checking everything. And you look at it and you go: ‘Oh that’s really really hard. Just those four notes, it’s crazy. Change it, now is the opportunity.’ And it’s a fine toothcomb checking as well.

*AM: And does the person who notates your music also work with your audio, double-checking, or just from the hand-written score?*

JP: I think they want a degree of separation. They just send me the notes. And I’ve also got this other thing, which is, I’ll send them the score, just notes, nothing else, no dynamics, nothing at all. They do all of that, I proof it, because proofing is a big deal for me, and I’ll proof it all, and then send it back all marked-up in red, if they’ve made mistakes or whatever. And then I send it back and I know that the notes are OK. Then I add dynamics, pedaling, phrasing, all of that.

*AM: You do that?*

JP: Yeah, I do all that. And when I do that, I go right back to the software, track by track or part by part. I will listen to it, and that’s when I’ll go, is that a *forte* or a *fortissimo*? Not how loud it is decibel-wise, but what does it feel like? With what intensity is the person going to be playing that?

*AM: So the notation phase is actually still a composition phase?*

JP: Absolutely it is, in the sense that that’s the stage when I think about, OK, this is a performance that I’m creating, with the score. Not creating but generating. And so, to guide… Dynamics for me have always been a huge dilemma. And that’s software related, which is, are you going to say, rule of thumb you know, -10 [dB] is a *forte*, 0 [dB] is a *fortissimo*? You know, you can’t make those kinds of rules. And so I’ll go through and listen to the parts and just think, I think this is a *fortissimo*. And it might be later on that the context is different, and you’re getting the same meter level, and actually I think this is just a *mezzoforte* here, given the intensity of the music and what’s going on.

*AM: So it is in a way a translation, the notation?*

JP: Definitely, that’s a good word for it. And then I’ll do the other thing, where I put everything together and listen to it all together and think, what is the overall dynamic intensity here? And then I’ll try, I’ll see if that reconciles with my understanding of the individual parts. But I often, often really fuck it up, you know. And especially within multi-layer things where there’s lots of people playing. I’ll get too involved in that, and I should be a bit more general. And I’ll just… You know there will be, this one is *mf*, this one is *mp*, this person is *forte*. And then at the end you think, how do the performers figure out what I want with all of that? So that translation from the mix that you get in your DAW to dynamics in the score is still a real problem for me. I haven’t really figured out how to get that right.

*AM: And eventually, when you loosen yourself a bit from the piece, do you then, listening back a few years later to the best performance and your original MIDI [version], do you prefer your own MIDI [version] or the best performance?*

JP: It varies of course. I’ll give you a really great example. One of the very early pieces I wrote using the technology was a string quartet called *Abhisheka*, which had quarter tones and slides and things like that. And I spent ages sequencing that, getting it all how I wanted it. I gave it to the New Zealand String Quartet, they played it, and they played it a lot. They took it all around and they played it for ten, fifteen years. And I went to a festival performance where they played it, and I hadn’t heard them play it for a really long time. And I had this incredible experience of having things revealed to me about the work that I didn’t know. Because they were much more in the piece than I ever was, because of their journey with it. And that’s where the live performance not only is sort of better than the MIDI, but it transcends, you know, what I had understood the work to be. And the work has grown into something else. So that’s very special. But then I’ve had experiences where people had played, say, a piece for piano and backing track, or the one I’ve just done, which is for six pianos and backing track. And you’ll hear it played in a concert situation, and you know how concerts are. They have their own energy about them, and they have their own forgiveness about them too, about what can happen. And I’ll be at this concert, and everybody afterwards is just going: ‘Oh my God, this was so incredible’, and I’m going: ‘Oh, it was really incredible.’ And then I listen back to the recording of it – there was so much wrong. But you just… It doesn’t matter. But then if you take it away from the performance, and you compare it with the MIDI, you think, the MIDI is way better. But you would never play the MIDI in a concert, because that’s not the same experience for the audience.

*AM: Are you a control freak?*

JP: Yeah, well, performers would say that I definitely am a control freak. But then I’m learning to be more generous, and to also have a broader perspective about things, which is to think that… You know, I have to always appreciate that I’ve been so lucky, so many performances and so many things happening, that I’ve had to train myself to be in a situation to think: this isn’t everything. This is a performance of a piece, and this person is just trying their hardest. All I need to do is appreciate that this person is trying so hard. That’s what I need to appreciate. Because you know, life is short. And energy needs to be positive, as much as possible. And so I’ve often found myself quite consoling and counseling performers, and say: ‘Look, don’t worry, it’s OK, just relax, it doesn’t really...’ Whereas it used to be like: ‘Hm, wow, really, you can’t…’ You know, I was more like that. And I guess it comes with age, and more knowledge about life, and value, and all of that. I’ve just come to the point where I appreciate far more the fact that somebody gives a shit, and they’re trying really hard, and they really love the music. That sort of matters much more.

*AM: But do you feel - that has to do with the question whether you’re a control freak – that your music has a big margin [in the relationship between a precise and a musically successful performance]?*

JP: I would say it’s more in the zero margin. Because this thing that I’m doing with the backing tracks… Somebody said it to me really well, which is two things. They compared me to [New Zealand composer] Gareth Farr, and they said: ‘The thing about Gareth is that he writes music that sounds really hard but that is not too hard to play. The thing about your music is, it looks really hard and it is really hard.’ And so the thing in that context is, from an audience point of view, you tend to know when somebody makes a mistake, because you can kind of… There’s something about the message you’re getting from the performance. And then the second thing; somebody said to me: ‘Look, the thing about your music is, you can’t bullshit. It’s just really obvious when you’ve made a mistake.’ And that’s a whole way of having to learn and play with that kind of music, where you can’t hide anything.

*AM: It’s transparent.*

JP: Yeah. It’s always like you are set up to be exposed if you do something wrong. And I feel bad about that. I wish I knew other ways of doing what I want to do, because for me, I always have to hear what I wanna hear.

*AM: Does this transparency have to do with the DAW?*

JP: I think it’s because, especially with the karaoke pieces now, of which there are more and more, you can’t hide, there’s so much precision and alignment. And also in ensemble pieces, the piano and percussion pieces that I’ve written, all the concertos, the interaction is so tight and so precise, in order for the music to work, everybody has got to be locked into this thing. And there’s no repetition, and no one is doing the same thing as anybody else. So when it goes sideways, and because I write modal music, tonally it’s really obvious what the world is. If you step outside of it, it’s obviously an error. You know, there’s this thing about contemporary music, which is that, if you have a premiere of a new piece, audience doesn’t know if it’s going well or not. They can’t tell if they don’t know the piece. But with my music it’s often more obvious than with other kinds of music. Sorry, I am rambling on…

*AM: No no, also your talking is very transparent [JP laughs]. So in* No Man’s Land*, and also in* Between Zero And One*, you invite other people to offer you material. Has that been a big step?*

JP: Really big, really big. The *No Man’s Land* project is the culmination of all of that, in which, in order to… It would be interesting to talk about the use of the DAW for that project alone. But that entire project encompassed every kind of approach to making music. So that there’s an amazing Sufi ney player from Istanbul in that, [Muhammet] Sadrettin [Özçimi], and he didn’t wanna know anything. He just wanted to… I mean, he didn’t even ask what the key was. He just heard a few seconds of the music, he knew straight away and he just said, roll, film and recorder, I’m ready. He just played and it was extraordinary. So that was like almost zero dialogue with the musician, apart from being in the same room at the same time. And then I had in the project a shakuhachi player, different kinds of singers, where we would talk about the feeling, what are we heading for, talk about the key, and I would say things like: ‘It would be really great if you could make this kind of shape. Maybe hit a kind of peak really close to the end. Or don’t have a peak, just keep stable all the way through.’ You know, just talking about energies and things like that. And answering questions. Percussionists were really interesting, because they came from a whole lot of traditions. And I sent them stuff like guide tracks. I mean, everybody got guide tracks. But I sent them stuff that had me mocking up loops and things like that. And I said, basically this kind of groove. And when I turned up they would go: ‘Yeah yeah yeah, that’s great, but look, I was thinking, let’s do this.’ [laughs] And the thing is, every single one of their suggestions was way better. Because they know what they’re doing. So part of the process, or being the person in that project, is being able to accommodate those sorts of things. But also, when someone says like: ‘The tabla thing, I want to turn it around. You’ve got it on the end of two; I’m thinking the end of three is better, and maybe doing this on the one.’ You have to be able to do a really quick computation in your own head and think, what does that mean for all the other parts at that point, and do they line up, and is that going to work for overall groove? So there’s that. And they were given very rudimentary notation, and there would be the odd one who would say…

*AM: So you sometimes gave them notation?*

JP: Yeah, yeah, very basic stuff, like eight bars of this kind of thing, sixteen bars of that. And then there were… I had an orchestra there and a choir, and they were playing off completely notated things. So it was the whole continuum of dealing with lots of different kinds of improvisation, and levels of freedom, and of control. And then going to the completely controled, which is the western classical thing. And you’ve got Sadrettin at the other end, who just doesn’t want to even have a conversation. He just wants to play; it’s all about the music, and the more we talk about it, the less magic or devine it’s going to be for him. So he doesn’t want anything taken away. And the thing is, for *No Man’s Land* I had to create a mockup for the entire work, so that we had timecode going from beginning to end, that we were going to film and edit to. And so the music came first, had to have everything in place, right down to the frame, every frame. And I had to mock up… So I had a fake shakuhachi solo on there, I had a fake ney solo on there, fake as I’d grab it from an audio recording, put it in the right key, and put it on top of what was going on, so that we had an idea of what it would feel like. And that’s getting much more to the audio thing. Not sequencing a ney solo, I wouldn’t, I didn’t do that. And then the vocal things were basically… For example Meeta [Pandit], I would send her the backing track and some description of it. And then we would Skype, and she would sing to me over Skype while playing the backing track off the phone, and I would listen to that, be recording it as well. And then I would say: ‘Hey look, can you just sing that and record it on your phone, and send that to me?’ And then I would put that into the mockup. I would have a mockup of her in the actual thing. So that’s using the DAW as a kind of net to capture a whole bunch of things as well.

*AM: Were you a band leader, perhaps partly?*

JP: Well, because I just mostly worked with people one on one during the process, the most I ever had together was like three or four musicians. And then we had orchestra. They have their own leaders, you know. And so it was not really a band leader in that we never really had a band together at any point. That only happened in the live show, when we had this group of seven live musicians.

*AM: One more question. How does it* [No Mans’ Land] *relate to* Between Zero And One*? How did one lead to…*

JP: Yeah yeah. So *Between Zero And One* was this percussion sextet playing to a backing track. It was the first ensemble version, really, of this idea. But within that, there’s a piece called *Between Zero And One* that has these videos of people. And that was something I had wanted to do for ages. And we had to do it with no budget, so I basically just wrote to friends and said: ‘Well, is there any chance you could…?’ I set up a camera, I set up the microphone, and I said: ‘Don’t worry about the quality of the camera, because we’re going to have lots of different kinds. But get a good mike, so that we’ve got good audio.’ And we managed to do that. We assembled it so that people came and went on the screen. And they played with [New Zealand percussion ensemble] *STRIKE* on stage. And it was a very special thing, you know. It really struck me that the audience, all they talked about afterwards was that one part. They said: ‘Oh, there’s just this feeling of… I know you were trying to manipulate me and make me feel that way. But I couldn’t help it, because it was just really special.’ It’s like the world coming into the space, you know.

*AM: And what kind of control did you have of the situation?*

JP: Well, that was a very intense one on one with everybody. So for instance the bass player in New York, Matt Penman, I sent him everything. I had MIDI’d up a bass guide with all the notes and things, like the groove and all that. And he just took that into the single take of him playing. He got it, he nailed it. Someone like Serj Tankian, who was playing the piano in that, I had to ask him: ‘Oh, do you read music?’ And he goes: ‘I read audio dude’ [both laugh]. So what I did with him was, I had a camera over my piano, and one by one I played the chords on the keyboard, so that he could see exactly what they looked like on the piano. And them I sent him a guide of a MIDI performance of the piano part. And from that he was able to get his hands on the chords, because that’s really easy to figure out from there. And then he was listening to the guide, and he got the groove and the feel of it. It was a really great solution actually, thinking back on that. And then, when I worked with the singer - there are two singers - Leila at the beginning, I sent her the guide and said: ‘Roughly this idea.’ And she sent me back about five takes, and she said: ‘Use whichever one you want.’ There are quite a few of them that did that. They sent multiple takes back and said: ‘You pick the one that you want.’

*AM: That was actually also a question for* No Man’s Land*: if you fiddled around a lot with the material that you got from the various people. Did you take it almost like field recordings?*

JP: Well, the thing about *No Man’s Land* that was kind of unique for us was that we had to marry the video to the audio. So in general we had to use complete takes. That meant that, doing a film and a recording, it had that extra challenge of, we’ve got to make sure we get a complete take that we can use. And sometimes we would… If we did ever edit - because there are a few places where we did - we would cut away to archive image or some other footage and then come back. We managed to cheat it a few times. And there were some things like… There were a couple of musicians that turned up that actually couldn’t play in time. And we ended up doing a huge amount of editing, of tidying them all up. But thankfully for the instruments that they were playing you just couldn’t tell. It just looked totally fine, you know. And there was one other… No, in general that was it. The thing about *No Man’s Land* that is extraordinary is that, apart from two cheats, everything is recorded on the set. It’s just incredible that that worked in the way that it did as an audio thing.

*AM: Do you think that from a DAW perspective,* No Man’s Land *is the most special thing? Or is it just a chain of different approaches?*

JP: No, the thing about *No Man’s Land* is that the DAW really served a purpose, which is, it was much more functional. I used it in some ways as not particularly creative software. I was creating a soundtrack for film. That’s what I was doing. Whereas with this piece [*Demonic Thesis*], which I’m going to show you a bit of, the new piece which I’ve done for six pianos and audio, the DAW to me really came to its own in this process. I was doing this where… This piece is a very big narrative. It’s 40 minutes and it’s… a lot of things. But it got to the point where I was thinking, I need the sound of a crowd of a thousand angry people. And I would actually commission somebody else just to create that for me. And so that would actually go into their DAW, and they would go in YouTube and find all these recordings of people screaming and shouting, and create these textures for me and send them to me. And I would bring them into my stereo audio file. But they would also send me the *Logic* file that they had made it in, so I could go in if I wanted to, to remix and redo stuff. And there were things like - some things I didn’t end up putting in the piece – where I wanted the sound of the music gradually being submerged under water. And they would go away and do this, and create these various ways of imagining and hearing that. And so the DAW grew into multiple DAWs, and multiple users, and multiple creative entities, that were feeding into this sort of home base, where I was doing the composing. And I would do things where I would say, ‘I really quickly need to build up a really chaotic cacophony of forest, gradually introducing layers of sounds, so that it becomes incredibly overwhelming. It’s supposed to depict the world without us, you know, nature reasserting itself and so on.’ And so I would get that, and it would be like fifty layers of animals, but also all of the automation, and the EQ, all of these things that someone else had done. I would pull that into my system, and then I would have the control over it, and I would change it how I want it and shape it myself. And so it’s really interesting, that idea of it slowly becoming a network of DAWs now.

*AM: Actually, the way a film director puts people in action?*

JP: Yeah, exactly. And then I would go into a studio and record a singer for it, that I wanted to, and then I would bring her recording into my session. But then I would play with it. So I would start cutting it up, and then I would use it in a different part of the same movement, and reverse it, and make it very ghostly and ethereal so it sounds like it’s coming from the past… You know, all of these other things that I would do with the sounds, which is getting much more into production at that point.

*AM: And was this triggered by the work on* No Man’s Land*, where you worked with a bigger team?*

JP: Not really. This was a really new way for me. I mean, *No Man’s Land* was really me composing. But this is more… It’s almost like meta-composing at times, where you’re curating almost.

So I will show you a couple of things here. Firstly I will give you an example of. So this is the piece that I’ve written for this *Piano Circus*, they call them [plays music].

*AM: Was this piece planned, from beginning to end? Because at some point you said that you compose just chronologically almost.*

JP: This one was with a narrative. But the thing is, I had a narrative and didn’t know at all what it would sound like.

*AM: So that’s a new thing actually?*

JP: Definitely that level of planning. I will just show you quickly on my… to give you an idea of the planning. Here we go. The piece is called *Voices Of The End*. So I knew it was going to be 40 minutes, because that was the commission. And then this is all content that has inspired it. So it is transcribed from the movie *Planetary* here. Have you seen that film?

*AM: No, I have not.*

JP: Really worth seeing, yeah. And these were the sections. So a prologue and an epilogue, with three things in the middle. And these are the three sort of ideas: that we keep going as we are, or we could talk about how it’s all falling apart, or we could talk about how it’s going to turn around. It’s just the three different stories that we might tell about ourselves. And then this is breaking them down into sections.

*AM: And is this something you always do in your work?*

JP: No, but this was very complex, because the thing that is entering into my work now is, I don’t feel I can just keep writing abstract music that has to do with notes and sound. It needs to have more to it than that, you know. Because I guess I’m wanting there to be more meaning in what I’m doing, and not just this kind of exploration of sound, but more than that. And it’s kind of in some ways going against the university idea of, music is pure research. Where does the music take you? For me it’s really about, what sort of contribution is it making? What is it bringing into the world that has some point, some value, some relevance, and some meaning? And because I’m Greek I’m addicted to tragedy and misery, it’s sort of very end-of-the-world-ish, this kind of thing. Because for me it’s impossible to look around and not be overwhelmed by that side of things. But in the work itself there is the pursuit of finding hope, you know, a way of looking at things in a more positive light. But honestly, I’m actually really feeling that, like *No Man’s Land*, in some ways the whole point of that project was to see, is it possible to get to a place where you can create a commemorative work about the First World War that has something positive in it. Because for me it’s utterly tragic, and it’s retarded behaviour. And commemorating it is often really stupid, the way that it’s done. And so the thing that I found within *No Man’s Land* was this idea that at least a hundred years later, in Polygon Wood in Belgium, Scottish people are not murdering German people. At least that is not happening, you know? And at least the border between France and Germany where millions of people died fighting over that line on the map… you drive over it now and you don’t know that you’ve done it! Because it’s open now. Those are positive things. So it’s finding something like that. In this piece, the voices at the end, the positive for me is really just at least an expression of hope, which is that we have this massive evolutionary pressure behind us, of surviving. You know, that’s been the driver for us, survival. How we do it, I don’t know, but there is some comfort to be taken in the fact that even at an evolutionary level, a genetic level, we are programmed to survive. So there’s something there…

*AM: Do you feel that the DAW possibly distracts users from dealing with content, or with deeper meaning?*

JP: Absolutely, because it’s this incredible playground. It’s like a *PS4*, when you’re playing a game. It’s like: ‘This is addictive, I’m loving this, and it takes me to the next thing, and I can add this, I can play with this new plugin, I can buy a new library. This is so much fun.’ It is so much fun. And I think it absolutely can distract. It did that to me for years. I think that working with MIDI, sampled instruments playing notes, is in some ways the most removed you can be, because none of it is real. And it’s a playground, it can be a playground. And my journey has been about, and I think part of it is, like I say and I keep saying it, that I’ve been happy in that so much has happened for me, that I’ve kind of gotten over this incredulity that my music is being played and that it exists. And I think that’s awesome, that’s great, that’s kind of there. What else? I mean, what’s really important now? And that’s why I think I’ve moved into this. Unfortunately it has become uber-serious, everything, it has become, well, part of me… My family said: ‘Man, do you know how to have fun dad’? [laughs, then shows and plays bits from *No Man’s Land*, including several field recordings]

*AM: So now that you go deeper into content, you actually use more field recordings?*

JP: That’s the great thing about the DAW, that there’s a kind of limitlessness about it now. It has gone from being limiting in the sense that it’s MIDI notes, and the sounds are not very good, and I write too many notes because there’s no body to the sounds. It’s gone from that to, I can bring everything into this, literally everything. So one of the movements of this ends with the recordings made by the Voyager probe of space. I don’t know if you’ve heard those? They are magnetic recordings that have been put through a speaker and they create sound. And they are all perfectly tonal, they are these tonal fields. It’s incredible. That is the recordings I’ve made, but also the broadcasting of our message, the UN ambassador saying: ‘Greetings from planet earth.’ That’s our voice going into space. That’s in there, in one of the movements. And we played that at this preview, a month or so ago, and people were saying, they couldn’t describe how they felt, to hear our black box recording going into space, you know, our voice going into the cosmos. All of that stuff coming into a work, which is beyond the notes that people are playing. And there are so many layers of reference within in. But it is contained. And it is curating multiple layers of meaning, to try and generate a vision, an overall vision.

*AM: But in the earlier years, when you were on your own in your DAW, how was that if you talk about emotion? You were extremely into it you told; was that…*

 JP: Well, I had nothing to do with anything other than the music itself. It was entirely about the music. For me it was about the trajectory, how is it unfolding, what is it becoming, and isn’t it amazing? There’s a lot of that going on. But that was all about music, the pitches, and the rhythms, and the textures, and the shapes, dynamics. And something growing from nothing. It was really about that. And I think what has happened here is that there is a different kind of purpose now. I was satisfied I think because I could work with a DAW to do it. I was satisfied with going in parallel with the unfolding of the work, and feeding into it and it feeding into me. This bio-feedback loop going all the way through until the end of the work. I was satisfied with that. And if you listen to a lot of my music you will hear me in it, going: ‘Wow, wow!’ all the time, you know. And that’s literally what was happening. I think that working with the software has enabled me to put that feeling into the music, so that when somebody else hears it, they feel it as well. Now I’m sort of going beyond that, and I think, well, I’ve done that and it has been great. But now I want to do something beyond me, about a reality that is shared by more people.

[more listening to field recording and excerpts from the work for six pianos and backing track]

JP: The technology thing has been my secret door into the world of music making. It has been my free pass. Because I have never had to front up and perform.

*AM: It’s your instrument, in a way.*

JP: That’s right, it’s my instrument. But I can’t really play it with anyone else…

*AM: Are there general observations about people using DAWs, general things that you notice?*

JP: What’s interesting for me is to observe my students using them. Because in some ways they have way more ability and facility with the software. And they will come up with something that’s like a song, a rock song or a pop song. And what they do with the drums sequencing and the guitar sounds, it’s so incredible what they can do, and they are so fast. But there’s something about having that facility that I think is limiting, because… It is like you can get to a result, you go, I need a really great seventies drum sound, I need the style and everything. And they will get to that and they will do it, but they have not done that thing where… Well, this is an amazing sort of interface. It has just got drums, you can tap them and they play, you can change the actual drums, and just go on this weird non-directional journey, with exploration of the software. And I think that the software has become amazingly good at getting you to a destination, a pre-conceived destination. And I see this like, we have developed a film scoring programme where I teach. So everybody has got Logic and sample libraries, and they are all doing it in a box, composing for full orchestra and everything. And they will go for the sample library that gives them the Hollywood string sound straight away. So everything has been recorded, compressed, mixed, and you can just quickly create textures, and they sound great. And there is no exploration there. It’s just straight to the destination. For instance, in the new stuff you have a fader for the degree of inaccuracy within sections. They will do that, but they don’t… Well, if I would have had that, I would just play with the inaccuracy settings all day [laughs] and see what happens! Because it’s going to give you something really amazing that you can’t imagine. You can’t immediately imagine where it might take you.

*AM: So you go to the edges of the possibilities…*

JP: Yeah!

*AM: Do you feel that* Logic*, as it is now, directs your actions?*

JP: I think so. I think I’ve got some good strategies for getting around things. You know, the way you set up a session, the way you slowly build things… The one thing about Logic that has changed a lot is that… You know, this laptop cost me a fortune. It’s got a 2 TB Solid State Drive in it. Almost 90% of it is my libraries, so everything is here. And it can do anything. It never really crashes or struggles with anything. That’s a big shift. I think prior to that I was directed quite a bit by what it could not do. And I would think: ‘Well, I can’t add another track. It’s not going to work if I add another track.’ Or: ‘I can’t add reverb, because it just can’t cope.’ Whereas now, I have stopped worrying about that. I would say that’s one thing. The one thing I wish it could do, that I don’t think any software does – or maybe it does – is multiple clock speeds. The fact that anything is on that one clock. If you wanted to have different parts… Even [Conlon] Nancarrow, the player piano stuff, I show my students that stuff. I look at some of it and I ask my students: ‘How would you sequence this?’ And they look at those multiple tempos, and they look at the tempos accelerating within themselves, and they just go: ‘How do you do this?’ I find it fantastic for Nancarrow to have got to a place that we still can’t easily replicate. That’s kind of amazing. So there’s that. But the thing for me is that I always think of myself as actually quite an amateur with all of this stuff. Because whenever I go to a recording studio, and there’s somebody there setting up all of the stuff, the plugins, and the great sounds, compression and all that, I think: ‘Man, there’s so much I don’t know.’ And so I tend to feel like I’m an amateur. So because of that I feel freer! I don’t feel like I have to achieve a kind of professional quality in terms of production, I feel a bit freer from that. And it’s just so vast, the *Logic* environment, it is really so vast, that I just feel like I’m going to be exploring it for the rest of my life. I’m not going to… I don’t think it’s ever going to run out for me. This is a good closing…

*AM: There was one thing you forgot you wanted to say?*

JP: That’s what it was – it was to do with the virtual performer, the karaoke music, which is essentialy giving somebody a virtual partner on stage. You mentioned it before, there is security in there, because it will always be the same, it will always be perfect. And the other thing is, it allows you the sort of confidence when composing. You know that these elements are all going to be there, and they are going to work. So you are freer to create the live part. But then also for me, my approach to working with the karaoke thing is that I’ve always understood that the performer, the person playing live, has to be the storyteller. They have to be the primary narrative element in the work. Otherwise, why do they need to be there, you know? There has to be a very strong reason for them to be there. And so that’s just part of my approach, my philosophy, which is: I just put the performer in the foreground of the storytelling all the time.

*AM: That relates very nicely to my very last question, which is, of course a DAW also allows for live electronics. Live electronics can create another storyteller on stage…*

JP: I’ve never been near that. And part of it is… It’s a control thing, which is that I’ve never felt confident enough about giving that up. And also, if you’re going to have pre-recorded stuff, live performance and live electronics, there’s an even bigger question of, why do you need the electronics to be live? If there are electronics, why can you not pre-programme those things? So that thing about why is really important: why is that person there, why is that person not there? I’ve seen laptop artists at more poppy gigs, like there was one in New Zealand. Talvin Singh, a tabla player, came, and he had a laptop dude with him. And he would press enter, probably, and this huge thing would happen in the system. And then he would basically just do this bouncing his hands with the music. I was watching – the visual energy does not match the audio energy that I’m getting. There’s a real disconnect between these things. And I have always believed they have to match. Otherwise the audience is having a confusing or limited experience. They are not really able to engage with the musical narrative. And you get that a lot with anything that is amplified. It’s a risk, and I think you have to really manage it. That is why for instance the performers are really working hard in my pieces, because they have to sell the work, not the electronics…

*AM: I think that’s a great final statement.*

## Appendix 3: Interview with Danny de Graan, Amsterdam, 15 May 2018

*AM: Which DAWs do you use?*

DG: I use *Logic Pro*, the latest version, *Ableton Live 9* and *Sibelius*. And if you see *Max/MSP* as a DAW, I use that too. Besides I also use, and you can do everything with it, *MetaSynth*. I use that regularly.

AM: And *SuperCollider*?

DG: No, I don't use that. Very rarely to process something perhaps, but I couldn't say I use it often.

*AM: Do you feel the DAW impacts on your conceptual, aesthetic, musical approach in your composing, in creating music?*

DG: Yes, a lot, really a lot – in a positive and in a negative sense. In a negative sense: sometimes it limits me in my freedom of thinking, for example in dealing with meter. Or, when making scores, and not necessarily in *Sibelius* but in *Logic* or *Ableton*… For example, I am now working on a piece with 9 against 7 against 6 against 5 against 4, that kind of thing. Well, that doesn't work in *Logic*. But I want it, so it keeps me busy. So such things I have to do in *Sibelius*. In the past I didn't do it because I couldn't. So if it doesn't work in the DAW, you don't do it. You reach the limits of what you can do. If it is on your mind, and in your creation process, I experience it as limiting. And I realised in the past year it was becoming a limitation. I wrote an orchestral piece last year and I tried to create this rhythmic complexity, but within *Logic*.

*AM: Within the range of possibilities of* Logic*?*

DG: Yes, exactly. And looking back, I shouldn't have done it in *Logic*, I should have started in *Sibelius*. I now started with a new orchestral work for [Ensemble] Insomnio, and for that piece I decided to work in in *Sibelius* and *Logic*.

AM: In *Sibelius* as well as *Logic*?

DG: Yes, simultaneously. I do that with a rewire connection, so when I start one, the other starts too. And what I do is, I notate in *Sibelius*. It's a piece for *Mini Moog* solo and orchestra, a *Mini Moog Concerto*. The *Mini Moog* is operated by *Logic* and the virtual orchestra comes from *Sibelius*. I've also got some electronics, an electronic part so to say, and that comes from *Logic* too. And I really only do that because I became aware that the textures I was imagining couldn't be realised in *Logic*.

AM: And making the whole thing in *Sibelius* isn't possible either?

DG: No, because *Sibelius* has no audio editor. For me, the DAW is a digital audio environment, and this entire audio part of it… You could load a virtual orchestra into *Sibelius*, and audio fragments perhaps… In theory it could work; you could load them into a sampler.

*AM: An EXS player?*

DG: Not in *Sibelius*, but perhaps in *Kontakt*. But it would limit you a lot; you cannot use effects, manipulate the sound. It would limit you a lot. So now I've chosen the best of both worlds. I don't want to be limited by my DAW anymore.

*AM: That division of concept, aesthetics, musical results; do you start with a concept?*

DG: Yes, I couldn't start without a concept.

*AM: How much are your concepts led by how you work, or would like to work, with the DAW? Or is it elsewhere?*

DG: It is elsewhere. But I've also changed my composition technique in the past years. I've involved myself increasingly with spectral music, and I've used *Max* a lot. By studying scores of other composers' works, for examples older works by Ligeti, like *Atmosphères*, or new works by for example Haas, I discovered the complexity in their scores – I knew about Ligeti, but I didn't know about Haas – a complexity I was, and am, looking for. I understood more or less how it works, and I was hoping to catch it within *Logic*, but it didn't work as well as I was hoping. So therefore I decided to write [the *Mini moog Concerto*] really in *Sibelius*.

*AM: So the concept comes before the DAW?*

DG: Yes!

*AM: And when you develop your concept, you see how you can make it work within the DAW?*

DG: Yes, in the past years this is how I've started to work. I simply wasn't happy with some decisions I took in my work, with what I had made.

*AM: That brings us to the aesthetic and the resulting work.*

DG: What I discovered is that when you work with a virtual orchestra - on the one hand I enjoy working with it; on the other hand I notice it limits me in my work. What happens is that you become dependent on the samples you use, and you expect that these samples are a translation of reality. And oftentimes that isn't the case. For example, the high registers are tricky for almost all instruments. But if you use samples, it sounds easy. If you don't know that, you have to experience it. And that has to do with your background, your education, and whether you already wrote for those instruments. But I've made that mistake a couple of times, writing too high. A virtual orchestra can do that really well, and it sounds great. Some riffs for specific instruments - for example the trombone cannot play so fast in the low register, and some note sequences. If you don't know that, and you never wrote for the instrument, and your virtual orchestra can do it; those are mistakes I made in the past. I've made sure to remember that; I've gone through any possible orchestration book. Those kind of things won't happen to me again. I discovered by using those virtual libraries that it's a real danger. And I know many composers who made the same mistake, or still do. You just notice that technology doesn't completely line up with reality.

*AM: Clear. And on the positive side?*

DG: I know exactly how my pieces should sound! I know exactly when someone makes a mistake, during a rehearsal or performance. That's a big advantage. I know exactly how a harmony should sound, or a rhythm. I know all the details of a piece, because, when an orchestral piece is ready, there are at least 90 iterations, if not more. I've listened to it so often, I know exactly how it has to be. And I know the long lines; I find this very important. I'm really focused on form, so I find this very important. I don't like boring my audience. So if I drift off during a composition – I try to avoid it. I work with the golden mean a lot, and I made a *Max* patch for it. I know roughly how long my pieces need to be. That duration I put in my patch, it gives me subdivisions, and those I put in *Logic*. I've now made a couple of templates for *Logic*, and I've calculated the golden mean at the top. So I always see it as a kind of timeline at the top, points I work towards. My pieces are always constructed according to specific proportions.

*AM: Could you say the DAW for you is a means to realise what you want, but it doesn't define your approach?*

DG: Well, sometimes it does. What I like in *Logic*, for example; in the past I used many sample editors. Now I've got a lot of plugins that do roughly the same. I could make a spectral FFT transform in *Max*, but I've now got plugins that do it, all in real-time, so I don't need to programme it. So I can take an audio fragment, and I want to transform it spectrally; I've now got a plugin for that. And if I want to do something granular, or additive, or whatever, I've got plugins for that. It saves me a lot of time, and I can try a lot of things immediately in *Logic*. I can also make a chain of several of those processes, without any effort. From that perspective, I couldn't work without it. I really like working in *Logic* that way.

*AM: You've got several kinds of output in your composing. Some of it is audio, some of it is performed live on stage, and you've got dance music. I don't know if you see that as a part of* the same story?

DG: I've been asked to make a project proposal for a festival in which I would integrate the two. So I'm thinking about it, but they are different worlds for me now.

*AM: So we are now speaking about world of composition?*

DG: Yes.

*AM: Am I correct about those two kinds of output?*

DG: No, more… Well, it's correct.

*AM: Performance with live electronics perhaps?*

DG: The piece I wrote for Lunapark for example, *Feed my Speaker*, that's an electronic piece, in fact, which is performed live.

*AM: So the two extremes, and various hybrids?*

DG: Yes, exactly.

*AM: About the impact of the DAW; you told about things that are realised by musicians on stage, and the risks involved. How about music which has electronic output, fixed media?*

DG: I've also made acoustic works completely in the DAW. For example, I've written the very first piece for the Fokker organ, for the introduction of the revised Fokker organ, and that piece was created entirely electronically. They are MIDI data, there's no notation. The piece is called *Forma*. It is inspired on Stockhausen’s *Klavieretüde No. 2*, and in that piece he uses shapes: triangles, squares, rectangles. I've literally drawn these shapes in the DAW, and I've made algorithms in *Max* to generate these, using *Logic* to make things larger and smaller, time compression, data compression, expansion. I made a fully electronic piece with it, but acoustic. And I also make electronic music with *Logic*: concert music, classical electronic music.

*AM: And are there any risks involved, as you describe for your instrumental music?*

DG: No, not really. Perhaps I've got a blind spot there, that's possible. No, actually… I could say a few positive things about *Logic* that also relate to this. The nice thing about *Logic*, as I just described with the plugins; I use it as a montage field, so I construct my audio in it. But in the past years I've also been producing my audio in *Logic*. Not always; the piece I'm writing now, I do that in *Max*, and then I import it into *Logic*. But I often process sounds in *Logic*, simple sounds, and I make textures, and that works really well nowadays. It can be done with internal plugins, or with third party plugins. The other thing I wanted to say about the advantage of writing in *Logic*, and why I don't like writing in *Sibelius*... I really have to get used to it. What I do with *Logic* a lot is, I compose a fragment, possibly for a large group of instruments, possibly a few, possibly one, and what I can do is place it further away along the timeline so that I don’t occupy myself with it anymore. I can, say, place it five hours down the timeline. This way I can take and place hundreds of short fragments, and shift them around, put them in a specific order, and this can be done really fast.

*AM: So you're talking about the creative process.*

DG: Yes. Trying things out. I find that hard in *Sibelius*. If I'm not happy, I need to write it out all over again. There are tricks for that, a notepad and all that, but I don't find it practical. It's not within one window. And I can't easily try this fragment, that fragment, combine it, see how it works.

*AM: So you're sketching on different sheets?*

DG: Yes, that's how it works in *Sibelius*. And in *Logic* it's just one large sheet, all the pieces of the puzzle can be shifted around, horizontally, vertically. It gives me enormous freedom. I miss that, working in *Sibelius*. I work like that all the time. For the previous orchestral piece I generated five hours of material. I made it all in *Max*; I worked with two algorithms that made specific material for me, and I was tweaking those algorithms to get the material I wanted. And everything I made with those algorithms I put in *Logic*, for the full orchestra. The nice thing about it is, at a certain moment I had four, five hours, and I could go through it and think: ‘This is cool!’ And I had completely forgotten it, because I had continued with the iterations of the algorithms, and the original one I had forgotten. I gave it a colour, I marked it red. At a certain moment I had lots of fragments of which I thought, they are good. Those I assembled, and with those I've been composing, cutting pieces out, changing, modifying, extending…

*AM: It seems the way of working is familiar, but translated to the DAW. These were sketches; you were working with sketches.*

DG: Yes.

*AM: Are there any things you really wouldn't have done, ever, apart from the technical realisation, but purely in composition technique, had there never been a DAW? So not thinking about working with audio, but purely compositionally?*

DG: I think everything is possible without the DAW, in theory, through writing notes. But the way I work, and like to work, and what I aim to do, it is just not possible.

*AM: Why?*

DG: Well, I work a lot with algorithms. I often generate algorithms in *Max/MSP*, generating notes according to specific rules. There's a large degree of randomness involved, controlled randomness, within specific parameters. Randomness is applied within certain values. Not always though; for example, I'm now involved with a row of partials, but within those partials, choices are randomised. The algorithm makes choices I wouldn't make necessarily. Surprising choices.

*AM: And if you would use dice?*

DG: Yes, but I just don't have the patience. Perhaps, it would certainly be possible. You're thinking of Cage's I Ching?

*AM: Yes.*

DG: But in my algorithms, a lot of choices are made at the same time. So you have to throw a lot of dice to generate the material. I can also make choices for a full orchestra, in one go. Using dice… You can of course also connect rules to throwing the dice. But the way I work, it's not easy, let me put it that way. I don't know if doing it my way produces the best music, and that's also not the point for me. For me this is just a great way of working, and it currently interests me a lot.

*AM: And a big difference between dice and your approach is that you can listen back immediately.*

DG: Yes, that's true. And I've got more choices. I've got hundreds. I don't use them all, I always limit them, otherwise it will end in chaos. I'm not looking for chaos; that's not my goal. A choice might be: what note duration. Or a sequence of notes, that works too. What I've got now: I've made a couple of rhythm algorithms. And I've programmed a couple of rhythmic patterns I discovered and like a lot. And they can be chosen. I've also got algorithms for pitch, algorithms for sound synthesis, because sound synthesis and pitch are related. And all that has to - I find it important that there's a kind of unity. So if the electronics change, the row in which the instrument plays changes as well. If you would do all of that with dice, it would take you a long time …

*AM: Can you compare? Did you ever compose with just notation software, or manually, not using DAWs?*

DG: Yes, I tried. But it was - I lost speed. I did make sketches manually, which I then exported to *Sibelius*, or *Logic*, but I never made an entire composition, no. All of my works I made with a DAW.

*AM: Is there a specific work of yours you would like to talk about in this contect?*

DG: I've made a piece, *Equilibrium*, for the Fokker organ, with electronics. And I'm not a microtonal composer at all, but the organ is operated microtonally, and the electronics are microtonal too. And that piece I've composed entirely in *Max*. I've made algorithms in *Max*, a layering of five I think, and if I would press play now, independently – I recorded it in *Max* – you would hear the piece again. I'm very happy with the piece, in a certain way, I don't know why. I do know why: I simply find it a beautiful piece. But I find it really cool that the electronics and the organ are so unified, because I used the same algorithm for both. So I used one and the same algorithm to control both the electronics and the organ.

*AM: Is that specific for that piece?*

DG: It's particular for that piece, yes. It's one of the first pieces in which I started composing entirely with algorithms. And it's sort of one on one, so that at some point you cannot perceive the difference anymore between the organ and the electronics. I found that really interesting. Later I also studied a piece by Jonathan Harvey in which he realised that with orchestra and electronics. I find that very interesting, being able to realise that. But it's very challenging, these algorithms. It all needs to connect, you see? It all becomes one. And it needs to fit; in this case it was an organ that can play anything you want. An orchestra is a different story, but [Harvey] did it really well. He sometimes makes the orchestra talk, baby babbling – you can really hear it.

*AM: Did this trigger you in your own work?*

DG: No no, I discovered the piece later. I discovered it a few years later, looking for works that do the same thing, and spectralism as well. That's when I found it, and it keeps interesting me.

*AM: How do you see your influences anyway? Do you feel you work quite autonomously, that, in your concepts, you rely on your own questions or ideas?*

DG: Timbre-wise I'm very much influenced by others, I cannot deny that. I'm really impressed by spectral music at the moment, and I'm always looking for textures, and really inspired by how others do such things. I think [spectralism] is quite popular at the moment, I'm not sure. I know for certain one person in The Netherlands working with it, otherwise none. But conceptually I'm not so interested in - for example Tristan Murail, one of the first who started composing spectrally, who started analysing instruments. He took the partials and imitated them with an orchestra or ensemble. He recorded a wave and analysed it. I find it interesting, but not as a musical starting point. My concepts go beyond that, in most cases. I find this more of a way of doing things, it's a technique. In my *Mini Moog* *Concerto* I basically do the same thing, but the concept is completely different. It's the way I work. The concept has to do with the content of the piece, what it communicates, and not so much how the material was created. A carpenter is also not going to tell you about how the tree is cut, the timber is sawn, and then the chest is made. You see what I mean?

*AM: Another example of how you use the DAW just as a tool in your work, in composing. The point is what you want to communicate. Correct?*

DG: Yes! What I really want to avoid is technique, or technology, leading me in my concepts. I don't see filters in a synthesizer, or playing really soft on a instrument, as something conceptual. Bad examples perhaps; they might be concepts. But I don't see them as starting points, they are means to an end. Just like the DAW for me is a means to an end, just a tool.

*AM: It's a working environment?*

DG: Yes, it's simply my studio. That's how I see it. I've always made sure to avoid it taking the lead. It doesn't, for me. What I also avoid - let me put it like this. Three years ago I got the third prize for an orchestral work. It's called *ZAP!*, and I made it with algorithms. I was researching an algorithm of the magic square at the time. I was in the middle of the compositional process. I discovered the magical square through that Dutch composer -

*AM: Richard Rijnvos?*

DG: Yes, correct. I then started researching it. I made an algorithm, and, seriously, Richard Rijnvos' music simply poored out. I pressed play and I was like, wow, that's cool! Many of Richard's pieces I find really great. I had a piece, an entire concept, and at some point, halfway through the piece, I was a bit stuck. I thought, let's check it out, and out came that music. I thought, wow, so cool. I recorded it, did some editing, selected the good stuff and put it together; well, it was great. And - it didn't fit at all. Right in the middle of the piece this fragment appears, I found something that works great and I like it lot, but it just doesn't fit in my concept. You know what I did? I threw it out. It took me a week to make up my mind, really, but eventually I threw it out. Simply because it didn't fit the concept at all, even though it was good. It was great, but it just was Richard Rijnvos and not Danny de Graan [laughs]. You see, I threw it out, and the decision I took I find much better now. What I want to say is, something that results from a specific technique doesn't necessarily fit the concept. It took me a week of thinking, how can I make it fit the concept, and it didn't. It was nonsense. You have to be radical then. I found it hard. I didn't throw it away; I saved it, and I'm sure I may use it at some point. The funny thing is that it takes [Rijnvos] really a long time to calculate it all, whereas I press a button and, boom, there it is [laughs].

*AM: We can only guess how - for you it's pressing a button, him it takes a long time. I don't know - do you know if he does it digitally?*

DG: Anthony [Fiumara] told me he does it all manually. He told him so in an interview. We spoke about it, he told about the algorithm, and I checked it out.

*AM: The question is if the route you take, by generating it, still makes a difference? You say it sounds completely like Richard Rijnvos.*

DG: Yes!

*AM: Does the human interface have the final word?*

DG: Well, you make decisions. Many people think that if you create an algorithm, the music is there. It isn't.

*AM: When does it become music, at which point in the creation process?*

DG: It has to do with aesthetics; what are you looking for, what you aim for.

*AM: That's a question not related to the DAW: it's about you, and the music you want to create.*

DG: Of course, yes. With due respect to the DAW, it's a tool. I record with it, I edit in it, but it only becomes music when I finish work on it, and when I'm happy with it, you see. Otherwise it's like the sketches we spoke about. In this case it became Richard Rijnvos, because the scale I chose, the notes I chose, sounded in such a way that for each hit in the square... You've got a square which can be read in 29 ways, resulting in 29 harmonies, or clusters. But if you choose the wrong notes, or notes that don't fit together, the result is bad. So for me the challenge was to make something beautiful. Also for that I had made an algorithm [laughs] - a sieve I had made for Xenakis.

*AM: I was just about to mention Xenakis.*

DG: Yes, he used a lot of algorithms.

*AM: Do you see in your approach, and in Xenakis' approach...*

DG: Actually, I made a lot of objects in *Max* which I use a lot, and which I called *Xena*, after Xenakis: tiny algorithms that do something for me. For example a random algorithm: if you take a random algorithm in *Max*, it generates random values between 0 and a number you specify. What [Xenakis] did in some electronic works, and in acoustic works as well, is specify the bandwidth. That's what my object does. I use it a lot, and I copied it from him. I'm not the only one; it's used by many composers. But I've made an algorithm in *Max* that I always use when I want to go random. I never use random just like that; I always use that algorithm. You can make a very narrow band within which randomness is created. So randomness can be created between three notes, three numbers, but also between a million numbers, if you like. That's really his idea. You can see it in his scores, also in his electronic scores; he's got those too. You see clouds appearing, and that is literally what he does: he generates random values, he opens the bandwidth, he's got control data, he controls minimal and maximum values for the algorithm, and clouds appear. If you then link notes to that, of a certain scale covering multiples octaves, or a sieve as I just mentioned, you get a cloud that is consistent, but which also develops, by opening and closing the bandwidth. That's a common technique in electronic music, and it's also used a lot in acoustic music. Ligeti used it, and - many other composers.

*AM: It's also interesting that Xenakis started many of his works with paper sketches.*

DG: Yes, later on he started working with algorithms a lot, but in his early works very simple algorithms were used explicitly.

*AM: Also in his late works, like* Rebonds *for solo percussion, paper sketches are at the basis of the piece – from 1988-89, a rather late work.*

DG: OK, I didn't know. But I can imagine that these kind of things - I also start sketching on paper, not necessarily notes, more like shapes and those kinds of things. I also often write down the kind of expression I aim for – and what I often do as well is write a scenario. So I start with, how would I like the piece to develop? With keywords, and I use these in the algorithm too. Some time ago I had a deadline for a piece, and I was a bit stuck. Then I did that, and it worked so well that I'm still developing that approach.

*AM: Is there one piece you would like to mention in particular, regarding the use of the DAW? Probably impossible, since you made all of your work in the DAW. Could you pick out something?*

DG: That one orchestral work I spoke about, it's called *Cataracta*, that is entirely made in the DAW, with *Max* and *Logic*. It would never have existed… It's so many notes, so very many... If you would imagine doing that with the I Ching... You can clearly see it's been generated algorithmically. And I edited it manually of course, but to do this completely manually or with dice, it's not possible. Too many choices are made. It's all instructions for musicans. And if you have to create so many instructions with dice, within such a short time, it's a lot of dice throwing.

*AM: Yes, I understand. In your interaction with musicians, do you notice the impact of the DAW use? We already touched this implicitly.*

DG: Well, writing things that cannot be played.

*AM: Regarding range, dynamics, playing technique.*

DG: Yes.

*AM: And, as you mentioned, that you know the piece so well that you know each note and aspect when you go into rehearsal. No doubt this influences the working process?*

DG: Yes, that also has to do with politeness. You're not immediately going to - you just don't. That's a matter of a few rehearsals. And you learn that in the beginning things need to work globally, and then gradually you can make some comments. If in the last two rehearsals thing don't work well, you can speak with the conductor: 'It would be great if you could do this or that.' Often musicians realise it themselves. What I also notice is that through the complexity I spoke about, one may become too... Each DAW, except *Sibelius* or *Finale* (real notation software) is limiting. One may write too simplistically I find. Sometimes things might be more exciting, more interesting, if they were handwritten, I think.

*AM: Why?*

DG: I'm not sure, but I guess that if you compose manually, you are more creative in, well, you deal with each individual note. With a DAW you can simply play something, very quickly. And then your playing technique, how well you play, may be a limiting factor too.

*AM: A limiting factor, or possibly an enriching factor as well?*

DG: Sure, it is enriching if you can play something and it is notated for you right away, and you don't need to do anything to it. That's great. But I also see it as a risk, more and more. When I study scores which show me the way to go… I challenge myself, I keep learning. And when I study scores by other composers, in particular some of the big ones, I see how simple they write for orchestra. If you want to write as complex for orchestra as *In Vain* by Haas... It's very simply written, but very complex. And that complexity is often how he writes 9 against 7, you know, what we spoke about before. I just don't see that happen with a DAW. I don't know how you see that, but if you work with *Logic* or another DAW, it's so hard to do. And if it's that hard, you don't do it. That's it I think.

*AM: Unless your output is electronic?*

DG: Yes, of course. The truth is, when I work electronically, I don't work in bars – but with time. I just don't think about bars. But when I write for an instrumentalist, I need to think in meter.

*AM: This sounds like you are not a composer-performer in your DAW work processes, not a composer-performer at the keyboard…*

DG: I do that, absolutely, I do that too.

*AM: Playing…*

DG: Those algorithms are all in real-time. I don't play myself, but it's all recorded in real-time. And I influence it, often live. Through the bandwidths I spoke about ….

*AM: A performer of the 21st century?*

DG: I sometimes play too, but there's that limiting factor… I'm now writing a piece for a saxophonist, and I already wrote the piece twice. And the first time I had played it myself. And it sounded cool, and the saxophonist said: ‘When can I have it?’ And I just wasn't happy with it. That's partly because of that limiting factor in my own playing. It's not that I play badly, I just know that there's more. And better. So now I wrote it again, and I wasn't happy again. And now I'm writing it, and the concept is clear. It's all clear now. And now it's played by an algorithm.

*AM: Where exactly is the 'better'; is it in the creative skills?*

DG: What I aim for in these situations: I want to create, from the generated material, a strong concept, from the rhythm a strong concept, and the form… And timbre, but let's leave that for now. And if I do that manually, the rhythm, the pitches, timing, I cannot do that. I'm just not a musician. It's just not who I am. But I do aim for that complexity, those special twists… But what I can do really well: I'm very good at programming things. I can make a pattern, turn it around, make an algorithm that can do that for me. And very complex, as I could never…

*AM: When you say musician, you mean performing musician?*

DG: Yes, I'm just not a performing musician.

*AM: But you're a musician?!*

DG: Well, I perform, but not like that. I play the saxophone, but I will never call myself a saxophonist. I'm just not a saxophonist. I studied it, a bit. And I also play the piano, but I will never call myself a pianist. What I can do well is perform live with electronics. I can do that really well.

*AM: That's your instrument.*

DG: That's my instrument.

*AM: So instrumental instruments are not your instruments.*

DG: No, but I write for them, and I've got ideas about them, and it's my job. I just do it. So I need to find ways to do it. And I could do it partly manually. But if I do that, I find it limiting. As I said, it's too slow for me, because I want to try things fast. And I prefer hearing immediately what I did. That's why I make those algorithms. Besides, there's a complexity I could not play myself. Except when I would play it very slowly - that might work. But what I like about the algorithms is that on each iteration - unless I programme it - it does it slightly differently. That's why I always record it, I record everything it does. Because if I don't, and this sometimes happens, when I'm just trying it out: I press play, I hear it, and then when I think it's good, I didn't record it! You see what I mean? I make a change, check if it works, and something great comes out...

*AM: You use some words that may be related to other words. For example, when you say generating: does this relate to composing? And when you say randomness, does this relate to improvisation?*

DG: Yes.

*AM: I don't mean to say it's the same, but…*

DG: Yes, well, it is… I see improvisation taking place within a certain framework. And my algorithms always deal with randomness within a certain framework. It's never, just go for it. That's not how it works for me. I've always made a lot of decisions before I let the algorithm play. But that's not how it works just for me, that's how algorithms works. They are just a set of rules. Many people think that algorithms produce notes just like that, but that's not how they work. The algorithms I create and that generate music, I consider it my music. You see what I mean? I see myself as the composer. If I don't make that algorithm the way I do, that music is not generated. The decisions are made according to my rules.

*AM: My research is around music creation at the crossroad of composition, performance and production. We spoke about composition a lot. We also touched performance. If you don't create anything within a DAW, nothing sounds. How do you see the aspect of production - something the DAW offers, and pen and paper don't?*

DG: In fact, for me, production fully relies on the DAW. All my productions have passed through the DAW - unless it's a fully acoustic work.

*AM: And the other way around? Everything you make passes through the DAW, but does everything you make within the DAW also pass through a production phase? Perhaps the answer is no; John Psathas' answer was yes. There's no work that wasn't fully produced within the DAW. This might also be true for Jacob ter Veldhuis.*

DG: You mean a recording of, for example, an orchestral work, processed in the DAW?

*AM: No, what I mean is that a piece, for any instrumentation, would have been heard by you as "CD-ready" before it was ever performed by musicians.*

DG: I think that wouldn't be possible. I do agree though that - what I do, I have to be honest, is that I make it sound very realistic. I use things like key switches, switching between playing techniques, those kind of things. And sometimes - I have to admit that I sometimes prefer the MIDI version above the performed version [laughs].

*AM: Sometimes of always [laughs]?*

DG: Sometimes, yes, sometimes.

*AM: And why? Because they are more accurate?*

DG: Because they sound better, because the recordings are often not as good. Performance, yes… For example, two years ago I wrote a piece for the Fokker organ and Lieke Marsman, an author. She recited a poem and I wrote music for it. But that music is completely derived from her voice. Everything. And the organ talks. I analysed her voice spectrally, and the organ emulates her. So she says certain things, and the organ repeats them. It works really well. But the recording is just not good, I prefer the studio version. You hear the organ much better, the organ talks better, and the sound quality is simply better. The bass register sounds like a real bass … When you produce in the DAW, you're working with the full frequency range, balancing, optimising, getting the levels right, the right acoustics. And with an ensemble or orchestra, you have no influence. Unless you are allowed to do everything that is needed…

*AM: And post-production.*

DG: Yes, exactly. But you need the luck to be allowed to do it. It's not always allowed. So some factors you cannot influence.

*AM: And about the creation process; for you, does producing play an essential role in getting an idea of how the work will sound??*

DG: Yes, it does. And there's a danger in that. You just spoke about Jacob ter Veldhuis. I also studied his music, and I like it a lot. He's not someone who works with playing techniques a lot; it is quite straightforward. I don't mean that in a negative sense, but he is not so involved with the timbres of an instrument, orchestra, or ensemble. If you are (and I am, in many ways, because I look more from a spectral viewpoint), you need to work on that much more. And the big disadvantage of the DAW, or similar tools, is that those playing techniques are not available. Unless you record it all with an instrumentalist. But doing that for a full orchestra is hardly possible. There's an increasing number of sample libraries that offer more techniques, but it's still not always as you would like. Especially if you write for a solo instrument, or chamber music, and you want very specific sounds… And you may be misled, as I've often noticed, by the samples, in how you write for the instruments, also using such playing techniques. It may sound great, and you can use key switches to make it sound realistic. I like that, and if you write straightforward, it can work well. But if you want some more depth in the sound, it gets hard. I find it risky, relying on the samples you use. They are often unrealistic: close-miked, and produced. What people don't realise is that these libraries are made for film composers, and they just have to make an impact. When you play the violin very softly, but close-miked, you can set the level as high as you like, and it will sound great. But if you play the violin that soft in a hall, you just won't hear it. It has a completely different impact. In your productions it can sound great, but you have to be aware that using such libraries, such samples, may have consequences. So, yes, I do it…

*AM: You're speaking now about the translation of a DAW product to live performance?*

DG: Correct, yes. It will just never sound the same, unless it is really straightforward. You might be able to emulate a work by Beethoven with a DAW. But a work by Lachenmann, for example, or Haas - forget it. No way you will succeed. Microtonality is another factor. That's hard to realise. I just did it for the first time in *Kontakt*, within the DAW. It works, but it's hard. So I always do this producing, I make a MIDI version that sounds good, but I realise that this is not the final product. However, an organ or piano can be emulated quite well.

*AM: Harp…*

DG: Yes, harp, those kinds of instruments. I wrote a piece for the Conlon [foundation]. I received an honorary mention for that piece [*Riding the Euclidean Planes*]. It is for computer-operated piano, electronics and video. But what I did, secretly: I operated the piano with the computer, so a real piano, but added a bit of another piano in the tape, to enhance the sound, to make it sound just a bit better in performance.

*AM: Then it needs to be in the right tuning! You can adjust that of course… How do you feel about perfectionism; do you feel that the DAW suggests a degree of perfection that cannot be achieved by the human interface? Do you see that as an issue?*

DG: Yes, well, issue…

*AM: When you say that you often prefer the MIDI version above the performed version, that may relate to sound quality and recording aspects, but perhaps also to aspects of performance?*

DG: Well, musicians who just don't play so precise, or miss notes, may ruin a recording; that cannot be denied. A piece may not necessarily be too hard; you see, sometimes it has not been sufficiently practiced. That's possible, and I'm well aware of it. I know my piece really well, and I know when someone makes a mistake, but at some point it works out well. And often there's an interaction, balance, musicality, that you cannot achieve in the DAW. That's what you're aiming for. In the DAW it is often straightforward, precise. And you might manipulate that, but when you're writing, you just don't have the time. You want to finish the piece, you want to make the notes sound good, that's all. In your mind there's a certain strictness, and in rehearsal that imagination will loosen up a bit. In the past I found that hard; now I can let go a bit more. If a musician doesn't... You know, I find that problematic. I just don't like it if someone doesn't try their best. But honestly, that's the exception. But there is a risk.

*AM: In your expectations?*

DG: Yes. It's also a matter of getting used to this - experience I guess.

*AM: But is this DAW-related? In the past composers wrote highly demanding stuff without the DAW.*

DG: That's true. But in the DAW you always hear a performance. When you press play, you just hear a performance.

*AM: Yes, precisely, there's that aspect! So when you work in* Sibelius *, for example, with the basic library, which is rather limited, and with articulations that don't sound great, you have to use your imagination right from the start. Whereas, when you work with* Vienna [Symphonic Library]*, or other libraries, in* Logic*, you create an illusion.*

DG: Yes, exactly, that's it. But I think you just need the experience to listen through that. You have an ensemble background, and I guess you played with orchestras as well. So you know what to expect. But if you're only a composer, you're locked up in your studio, or at your writing desk, and you're constantly exposed to what you hear from your computer...

*AM: Summing up, you might say that this requires a new kind of expertise?*

DG: Yes, but it's unreasonable to expect it from a composer.

*AM: But you said that you developed such expertise.*

DG: You mean in letting go of the control?

*AM: In knowing about the pitfalls in composing with the DAW, and then making a translation for the performers - does that require a new kind of expertise? A kind of craftmanship that Bach didn't need: he knew exactly what could be done, since he played the keyboard when writing for keyboard; and he could play the violin too, and he could sing…*

DG: Yes, that's absolutely true. As a composer you're constantly learning, improving yourself. You're constantly trying to avoid, in your new work, mistakes you made in the past. You're constantly growing, and avoiding pitfalls. It's fun...! I often have the feeling - and I know this from others too - that each time I start a new composition, I have to start all over again. I have to learn composing again.

(Translation by Arnold Marinissen)

## Appendix 4: Interview with Yannis Kyriakides, Amsterdam, 17 May 2019

*AM: Which DAWs do you use?*

YK: I use primarily *Logic*, actually, really for the creative process, for putting ideas down, and seeing how they work together. But I also use *Ableton*, but not the timeline in *Ableton*, but more the [session view] live function, not all the time, but sometimes, for the live processing, in work that I do.

*AM: And do you use* SuperCollider*,* Max*...?*

YK: I use a lot of other programmes. *SuperCollider* I use primarily to process sounds. I used it in the past for live processing algorithms for concerts. But then I shifted to *Kymo*, I don't know if you have come across that?

*AM: Yes.*

YK: I'm using that now in a project with sensors. What is interesting about *Kyma*, somehow, in some ways it is a cross between a DAW and this more non-linear way of working. Because you have a timeline, but that timeline is really flexible, and you can stop it and start it in various sorts of strange ways.

*AM: Similar to the* Collider *[application] that Wouter Snoei built?*

YK: Yes, I think so, I've used that once. It is similar in the sense that you get this thing, you wait until the process is done, you trigger the next thing, so this kind of semi-flexibility. And actually, often when I work with *[Ableton] Live*, partially it is using this concept where you're thinking in terms of scenes. You're in one scene, but then you can be flexible how long you stay there, and in another scene, in another scene, in another scene... That way of combining both linearity and infinite, endless processing possibilities, I think that is interesting. *Logic* is frustrating because you can't do that. What I find great with *Logic* is the way you can - at least maybe that's what I'm used to - achieve flexibility of the automation, how deep you can go with automating things. Doing anything live is clumsy with *Logic*. There are ways of doing it, but it's just somehow...

*AM: Because we're talking about a studio situation, and a live situation.*

YK: Exactly. In a live situation where I have really complex multi-channel pieces, I then go for *Logic* rather than *Ableton*, because *Ableton*, up until this year or last year, didn't really manage the multi-channel things very well. Now I think it's better. But in a studio situation, when it comes to editing stuff - because I don't use *ProTools* - composing, trying things out, also, I don't know so many people who do this, but also for sketching out notation, I use *Logic*.

*AM: In the past, more people did it, in the early days.*

YK: I suppose I got stuck in the early days. One of the first programmes I had, pre-*Logic*, was *Notator*. I had that, and *Notator* was a German company, and it got bought by *Logic*. E-magic was the company. So I was really there from the beginning. It was a programme that really just coincided with developing my own work.

*AM: So you sometimes go to the notation window in* Logic*.*

YK: Because most of my work tends to be with some kind of electronics, *Logic* is the perfect programme to align electronics with notation. And then what I usually do is use not very sophisticated samples, but basic samples, just to get a sense of the form, and I usually make the notation, I print out a notation that is my sketch. And then on that I go back to pen, just make not notation on...

*AM Physical pen?*

YK: Physical pen, all the articulations, dynamics, extra stuff, editing. And then using that, I import all the MIDI data into *Finale*. And then I make the final score with all the details, in combination with this sketch that I made.

*AM: And do you input the notes through a keyboard?*

YK: No, mouse-clicks.

*AM: Not piano keyboard?*

YK: No.

*AM: Never?*

YK: Sometimes I... I often work algorithmically to a certain level, before. So before I go to *Logic* I work with other programmes. What I tend to use quite often these days is *AC Toolbox*, a programme created by Paul Berg, who used to teach next to me in The Hague. When I started using that I used to go to him and say, how can I do this, this and this. And he would say, ah, just do this, or - let me write that for you. So sometimes it's a case of having an algorithm in it and generating MIDI data, which I import into *Logic*.

*AM: Because generating algorithms within* Logic *is not possible - although there are plugins.*

YK: Yes you can; there is a sort of script thing with a MIDI effect you can use. What you can do is manipulate MIDI data. So often that is what happens. An example of this process is, I wrote this twelve hour piece for this *Disklavier*-type instrument that was based on an algorithmic process on a book, which I encoded into music and then brought into *Logic*. Imagine you had twelve hours of MIDI data. It took me a month, or two months, to just go through the whole piece and re-edit it and re-shape it. For *Logic*, what was good about that, I can cut it up into various pieces and say, OK, select all of this note and do this to it; select all velocities below this and do this to it. For that level of processing it's quite handy.

*AM: Just a side question; have you ever worked with* ProTools*?*

YK: I worked with it a few times, in recording sessions, when the engineers said, I use *ProTools*. So I've kind of used it, but I never bought it, I didn't bother with it.

*AM: How about the playback functionality of the DAW? You said you use quite basic libraries.*

YK: I do really appreciate that in a composition process I can step back and listen to what I've done. Obviously it's quite common these days for composers to do that. But I remember when I first started using it, not many composers were doing that yet. I also started composing with pen and paper, making scores by hand.

*AM: Those were your beginnings?*

YK: Yes. And I wrote quite a few pieces - I remember when I first started writing - well, I started writing at a very young age, but let's say, at York University in England, I got in the habit of writing with pen. We had this group of friends, and one of them who was doing a PhD at that time, Gordon McPherson, he had this very macho idea that if you are really sure about what you write, just do it in pen. First time, no mistakes [laughs]. So we got into this idea of, to be a real composer you had to just put it down in pen first time. So I got into this habit of the score being 'the thing that you make', of making very beautiful scores with pen. And then when I came to Holland, Andriessen, whom I was studying with, was like: no, I forbid you to write with pen. You have to write with pencil.

*AM: Otherwise you can only talk about the next piece, and not about this one...*

YK: So then I started to write in pencil again, making the final copy in pen. But at a certain point, I think it was only when I started working with electronics, and I was with Dick Raaymakers, I was involved in my last year of studying in a project with him with *Die Glückliche Hand*, and it was the idea that we write these pianola pieces...

*AM: I remember, I was there!*

YK: I never got into the analogue studio that was in The Hague.

*AM: You skipped the analogue studio?*

YK: I skipped that and I went straight into MIDI, and through MIDI I got into the laptop scene, Lo-Fi stuff, and then laptop scene. And then I rediscovered the idea of the studio after. But still I don't think I'm really comfortable working in the studio. It's just such a different paradigm.

*AM: Although if you look at your room here, it looks like a studio!*

YK: Exactly. But if you see all the analogue stuff - even though now I do sort of improvise with it and I record stuff, and I edit it, it's really primarily thought of as stuff that I take to the podium, live, rather than the idea of... I don't have so many pieces that are purely tape pieces, or fixed media pieces.

*AM: So is this like a virtual stage, or a private stage?*

YK: Yes, well, it's more like my stage and my bedroom [laughs]. They often say in the last fifty years there's three main stages of electronics. You have this studio paradigm; which is taken over by MIDI, and all the possibilities of computer music handling MIDI data; and then you have the laptop scene. And now we're into this analogue, modular thing - these kinds of trends. And I feel as though I came in towards the end of the MIDI stage, at the beginning of the laptop scene. Something like that.

So what I wanted to say, then I started using MIDI data to play the piano, I really got into this idea of having the feedback from the sound. And what I think that did compositionally, it allowed me - because I was already in that process, anyway - stretching out temporal aspects of the music. I was always fascinated by creating much more space in the music. And I think it generally allowed me to take a step back, and not be so on top of the detail. Because I think in a composition process when you are working really bar by bar, and you're listening to the piece, you're so actively involved that you forget sometimes to take distance and experience the timescale.

*AM: So that's talking about form.*

YK: Yes.

*AM: And about instrumentation; when you talk about playback, would you base instrumentation decisions on what you hear while playing back?*

YK: Partly yes. I don't know if it was being a student of Andriessen, that it was a result of that, that I was never into elaborate instrumentation. It was always quite paired down. So I never had really major concerns about orchestration, this more colouristic way of working. Not that you couldn't do that on the computer, but working with MIDI data, there were enough parameters to deal with in terms of timings, pitch, duration, more basic... So I think it meant in the first period of my composition with computer I wasn't so concerned with orchestration in that sense. And I remember when I wrote my first orchestra piece, also my last I would say, I realised even though I was a musician, I had played in an orchestra, I had the sound of an orchestra in my mind (though I wouldn't call myself an orchestral goer, I wasn't really deep in that world), I felt as though I needed to hear with MIDI instruments: OK, what if I voice the harmony with the oboe here, clarinet here, flute here, what if I change it? Just needing to hear back the differences of voicings, of chords, through the computer. So even in that sense orchestrating did help me. I wouldn't say I had a thorough grounding in that. And then for more elaborate pieces, with more elaborate techniques, then I would go and record those sounds and use them as samples, to see how they work. Once you start working with that, you do want to hear a sort of rough idea. I never go to the extent of getting every articulation, every dynamic right, but...

*AM: The pizzicati, the Bartok pizz.*

YK: Yes, exactly, not really, unless it's easy to do. That partly also had to do with, also around that time, after I finished studying, I did a lot of pieces for dance. I worked a lot with dance. The immediacy of going into the [dance] studio, seeing what there is, bringing material the next day, changing it, needing to hear the process, was also partly the way I got my chops, into using this software.

*AM: I suppose there's a big difference in creating stuff you know is going to be played back through loudspeakers in the live situation, or stuff that is handed out to musicians; it's of course two different kinds of output of the DAW...*

YK: Exactly. There's things that software, possibilities that software affords you. People would often in the beginning criticise the drawbacks of using the DAW, like for instance making possible rhythmic things that the computer can play and musicans couldn't play. Or the sort of copy and paste aspects that's easy to do in DAWs. And maybe if you're writing it out you think: maybe I'm making a few variations. I never really had a problem with that, in a sense of, when you have a new technology, to a certain extent you have to drop the old paradigm. It's not like an easy way of writing the old music; you have to think of the new possibilities that it affords. Of course you could even say a DAW is sort of halfway between the linear thinking of composition, and all the non-linear ways of thinking the computer could give you. But what I found, all those little things that the computer, even the DAW could give you... I did a few pieces with clicktracks of multiple tempos; or simply also the possibilities of using different media synchronised together. People say, using a clicktrack is not the most sophisticated way; in some ways it is, actually. It gives you the possibility of music that there wasn't before. I enjoyed exploring these possibilities.

*AM: Would you guess that if you had to create something now, away from the studio, with pencil and paper, just an instrumental piece, and you would create it either in a DAW situation, or with pencil and paper, would it potentially be quite different?*

YK: Yes, definitely yes.

*AM: Do you sometimes do that, still?*

YK: I still sketch out stuff on paper.

*AM: Before you would get started?*

YK: Yes, I would. But it would tend to be not worked out in time, but more like ideas of harmonies, or melodic material maybe. So really material I would say. And I think if you'd said to me, OK, write a piece now without the computer, it would probably go the direction of a much more open score. Because a lot of pieces that I've written away from the DAW in the last few years tended to be open score pieces. Still written with the computer, but with programmes - like processing, more algorithmically driven, open score type situations...

*AM: Less like timeline pieces...*

YK: Having also that experience of working with [Amsterdam-based ensemble] MAZE or other groups in an open score situation, you see the potential of musicians creating something out of nothing, not nothing, but out of the kernel of an idea - how exciting that is. So I think I would... Probably you could say with a DAW, sometimes it fixes you too much to a fixed timeline.

*AM: And how is that anyway, when you finish a piece and you hand it out to the musicians? What they do, how does that compare with what you heard, or what you imagined, when it was still inside the DAW?*

YK: I'm much more open about different interpretations. I'm not so fixed. In terms of amplification and general balance, if I'm working with a soundtrack of some kind, I still want the electronics to be very present. Often, the electronics for me have a kind of immersive quality; I want it to alter your sense of the space. So sometimes, more classical musicians tend to underplay that it's the accompaniment. I'm always concerned that the balances are good, because it has to have... I like playing with extreme dynamics, in terms of very very quiet, and very loud. So that's mostly what I'm concerned about.

*AM: A studio, headphones, a DAW environment, is very immersive by nature I think, more than a concert stage.*

YK: Yes. In fact I'm not a big lover of acoustic spaces, acoustic sound, because these buildings are often made with a specific idea about sound. And I don't think that often... Maybe in certain situations, a space has a particular acoustics, so that you think: I want to do something for that specific acoustics. In general, you want the experience of the studio to be transferred to the concert hall. In that sense the role of the performer is important, because I don't want to drown the performer in terms of the presence. That's why on a performative level I really feel I sometimes like it if the performer takes more freedom. So stuff like putting their own expressive interpretations, or being flexible with the tempo, or even... I'm less concerned with that. I want them to actually take a bit more freedom there. But that doesn't mean that I want them to be 6 to 10 dB louder than the electronics. That wouldn't make sense for me. I'm thinking of the pieces specifically that have a fixed soundtrack and live performance. These days I tend to be a bit more free in the relation between the two temporally. There is more tempo freedom.

*AM: You know John Psathas' music?*

YK: That's really highly synced! I don't really do that so much anymore. I used to do that.

*AM: What triggered that change? Experience with great musicians perhaps?*

YK: Maybe. Maybe it's this last point, that you don't want them to loose that presence. But I realise that this aspect of the electronics, creating this spatial immersive aspect, is still important for me. I'm thinking of the last piece, this piece *Face* that I did, that was also a fixed soundtrack with clicktrack. All those pieces could also be done without clicktrack, with lots of cues, which I've also done, using *QLab* or something like that. I'm always sensitive to the fact that giving space for the musicians... And then sometimes, when the electronics do take over, that it is only temporarily, to remind the presence of this other thing. This constant chance of perspective is important.

*AM: The electronics are one of the ensemble players?*

YK: Yes, even though in this piece there's also live electronics. But it is this kind of malleable element, this other ensemble player, but it morphs into different functions. I think that's really one thing that I'm more consciously doing these days. It's one of these things I'm constantly going on to students about, and something I'm conscious about in my own music: changes of perspective during the piece. Generally I like things to transform, from an emotional transformation, to a perceptional transformation, many different... And also in these relationships between media. I find that interesting, how you're hearing the music through the film, but then it switches the other way around. From the electronics to the instruments... So changes of perspective are one way of dealing with imbalances. They don't have to be always fity-fifty balanced. It's OK if things are a-symmetrical. But it's also interesting then if it changes.

*AM: Is this interest partly technology-driven? When you have a mixing desk, you can play around with balance.*

YK: Partly it is. I remember when doing a mix, mixing recordings, also with a sound engineer next to me, the sort of orthodoxy of the sound engineer, specifically in classical music: you set your levels, that's it. But I would always radically change the levels, to kind of orchestrate it in the mix. Maybe that's obviously more done in pop music. But still, for me it would be much more extreme. I really like the idea of this kind of dynamic composition. And a sound engineer would be like: no, you can't do that. I made quite a few CDs of my own music, and I often will want to mix them myself.

*AM: There's a few moments in the creation process where the DAW appears: in the making, in the notation (you could argue that notation software is also an audio workstation, if you use sample libraries), and definitely also in the production.*

YK: In that sense, a programme like *Logic* serves all those purposes. And not only that, but also playback, if you have a live concert, or you're using film... So my last project with this piece *Face* for Elektra was also playing back with *Logic*. We had it slaved to *QLab*; we had a sync system through different platforms.

*AM: And do the pieces change still in the production phase? You've written something in the DAW, it's perhaps only instrumental, or instrumental with electronics, it's performed, it's recorded, and it goes back into the DAW for production...*

YK: Yes, it will change, and it's happened to quite a few of my larger scale pieces, and I had this in my new piece *Face* that we're recording in July. I already know that... I was 90% happy with the result, but I still feel as though I need to shape it a bit more, specifically the relation between voices, not the sung voices but the computer voices. I also had a lot of live processing in the piece; each instrument was being processed in a different way. That was partly automated, but partly done live by me. So I know in the final stage that has to be perfectly done, in terms of - every grain of the granulation has to be just right...

*AM: So that would mean that the final production of a piece that was performed live and recorded would then per definition be ideal?*

YK: When you make a recording, the piece has its own life in this recorded version. It's there online, accessible, and I want that to be close to perfect, what I would imagine. But after that, I really don't want people to do versions of the piece exactly like that. If people want to do, in future versions, their own versions of it...

*AM: But it's there for reference?*

YK: It's there for reference. I'm really open, I'm totally open to different interpretations of my music, and I want people to make different interpretations. Because I know, as the composer I can make my version of the piece, but it doesn't mean that it's the definitive version. I feel as though the piece has its own logic and life, so that other people might have better, or different, or more interesting approaches to how to do it. So I'm totally open to that.

*AM: Some people feel that perhaps working in a DAW, and using the playback functionality, makes you kind of a control freak. But not for you?*

YK: I think, because it gives you that ultimate control, there is that tendency. But once you've finished the piece, you've stepped away from it, the piece has its own life, in a sense. I remember for instance when you did *Lab Fly Dreams* [for solo percussion and fixed media]. That piece also went through various changes; this large ensemble piece became a solo piece for [percussionist] Claire Edwardes. And then you did this version of it, where you chose your own instrumentation, did it totally differently. And I love that. It's a sort of setup instrumentation that I would never thought have about myself. The way you did it in terms of the dynamics, or the sort of articulation. I was so happy that you put your own vision on that piece. Even though you could say that for the rest it's quite fixed, because it's this fixed soundtrack.

*AM: Is there a specific piece in your oeuvre where you think: in that piece the DAW allowed me to do something really special, something noteworthy; or gave me a very hard time, because something I wanted didn't work out at all?*

YK: I would say that these couple of pieces that deal with microshifts of material, like *StrOBO*... It's one for Slagwerkgroep Den Haag which I wrote in [2001], six percussionists playing these glass panes, and each had clicktrack, but each person's tempo was speeding up and slowing down at different rates. So you had these kinds of rhythmic patterns that you can create. They had a click on the first beat of the bar, and they played with the click, and it would slow down and speed up. So it was something that I could notate in a very simple way, but I couldn't do it without this - working with a DAW. Similarly there's a piece, *Wavespace*, that I wrote [in 2011]. It was generated with these mathematical patterns in *AC Toolbox*, vortex-like patterns of movement, with extreme tempo changes. And again that was a piece that only works with... It was eight musicians, each with an independent clicktrack.

*AM: And the clicktrack would be run live through Logic?*

YK: Yes. So what I did then was, the MIDI data was generated with this slowing down and speeding up, so then there was a global tempo in *Logic*, but within *Logic* itself there were also extreme tempo changes, tempo curves within that. A very complex thing, but I could still line it up in *Logic* and send clicks with *Logic*. So something like that is something you can only... Of course you can do it with *Max* or *SuperCollider*, but it was pushing the DAW to its furthest you can do in terms of flexibility.

*AM: In theory you could have six people manipulating a normal metronome, and the musicians playing to it.*

YK: What a brilliant idea. That's a great idea.

*AM: But you could never have checked the sounding result.*

YK: Yes. Actually another piece is *Telegraphic*. The musicians are playing these changing drones, six musicians, and then six players playing telegraph keys, and switching the amplification of the drones on and off. It's very analogue, similar to what you say. But to actually compose that piece, I had to use a DAW.

*AM: Were these kinds of ideas also triggered by the fact that you were using a DAW?*

YK: Yes, definitely yes. In this case it was...

*AM: Like muting and unmuting.*

YK: Yes, it's a kind of solo muting and unmuting thing, but it actually came from the idea of noise gates on a DAW. So I would have one signal switching another signal on and off. It was this idea, and so you could do really intricate patterns. What this piece was: you got a kind of melody created from all these drones. To actually write the melody - I first wrote the melody, then I worked it out on the DAW, how that can come through logistically. The piece is played without a DAW, purely on telegraph keys, but it really needed that way of working.

*AM: I guess a final question; if you move from the DAW, from the MIDI files, into notation, what does that do for the piece?*

YK: I don't listen back with *Finale*. I know a lot of people work with listening back through *Sibelius* or *Finale*; I never do that. But because I've already listened to it so many times with the DAW, with *Finale* for me it's just simply seeing it from a musician's point of view, making sure it all makes sense: articulations, the score looks OK. I'm not a score fetishist, it just has to... Actually that's interesting, because I've noticed for some composers the logic of their work really comes from the score in some ways. The score affords you the ability to do something, of which, maybe, the end result is unsure. I work the other way: I have an idea what I want, and the score is somehow the sketching out of this. But it's setting it in a possible way, and it can be notated in many different ways, you could say. Because it comes last in the process, it's a different balance of working. So I never really think through a score, that's what I'm trying to say.

*AM: That's quite radically different from the early days, when you wrote with pen on paper? Then it was the first thing that came, and also the final thing.*

YK: But on the other hand, even back in those days, it was really like: first I have to have it in my head, then I can write it down. So it wasn't: what if I wrote this thing, I wonder what that will sound like. It wasn't that approach. So I wasn't using the score as a sort of toolbox. It's the other way around...

## Appendix 5: E-mail correspondence with Hildegard Westerkamp, January 2021

*AM: Did you have a specific approach planned (similar to or different from earlier approaches) in dealing with your technological tools, when starting work on the piece?*

HW: The difference to most of my other pieces was, that I did not go out specifically to make recordings for the piece. I selected favourite recordings from my large collection of field recordings that I have made over the years.

*AM: While recording the various voices, (how) did you interact with the readers of the poem on how they would read/interpret it?*

HW: I spent at least 30 - 60 minutes with most of the people I recorded. Some of them had never read poems out loud, nor had they been recorded doing so. In those cases, the work was to make them feel comfortable, give them a chance to access their natural voice, their expressiveness and feelings. It also involved discussing the poem and finding out, how it touched them. We experimented reading it in different voices, with different emotions, sometimes even contrary to what the emotion in the poem might be. It opened up interesting possibilities and ways of vocal expressiveness. Those who had experience with reading poetry out loud and also with being recorded, tended to experiment a little more, pushing some boundaries. It was a lot of fun! Only my mother (who was 97 at that point) and Murray Schafer (who read it in both German and English) read the poem two or three times only, firmly believing that no further experimentation was necessary!

*AM: Did you collect all the recordings before starting the compositional work, or did you keep on adding material along the way?*

HW: I attempted to collect most of the recordings I thought I might use ahead of time, especially since I was going to be far away from home, at the ZKM in Karlsruhe, Germany. But knowing my process, I also took much more than I would ever need. The sonic context of any given stage in the compositional process can suggest a sound or recording that I know I have somewhere in the collection, and it was good, when I happened to have it with me. Most of the second part of the piece was continued in Vancouver, in the Sonic Studio at Simon Fraser University, so I was closer to all my recordings. It was a great surprise to me when one recording that I had made years ago in the context of *Beneath the Forest Floor,* and that I loved very much, but that never made it into that piece nor into any other one for that matter, ended up in *Für Dich - For You.*It is a recording of two ravens flying through the old-growth forest, calling out to each other as if in dialogue. The recording appears in its entirety and without any changes or processing, between about 10:58 and 12:10 in the piece. It was as if it had found its right place among my compositions!

*AM: Did you go with the nature of the recorded material in structuring the piece, and/or did you create the work according to a preconceived structure?*

HW: I never have a preconceived structure for my pieces, precisely because in my experience the recorded materials will allow for a structure to emerge. It is a bit as if my initial idea for a piece, the concept, and the materials are in constant conversation with each other during the compositional process and together create the flow of the piece. I write about this in more detail in my article “Linking Soundscape Composition and Acoustic Ecology".

*AM: How did you, in this specific work, go about deciding on processing/transforming the recorded material, versus using it in its pure form?*

HW: There are usually sounds that have internal musical qualities, resonances, rhythms, that are attractive or inspiring and that I want to explore further. If the recording is close-miked enough and of good enough quality, I will use these sounds to explore their richness further, taking a similar approach to that taken in the *musique concrète* style, treating them like sound objects that can be abstracted from their original semantic and sonic meaning. Not all recordings or sounds lend themselves for that, much as we might desire for certain sounds to function in certain ways. But this is precisely the inspiring, if sometimes challenging, part of working with environmental sounds. They do not always fit into preconceived ideas or structures, which then demands from the composer to really listen carefully to what they do express and ’say’. From that careful listening then comes a creative process that acknowledges the inherent quality of a recorded sound or soundscape and may inspire a change in the compositional process. It requires flexibility and a love for improvisation. In that process new discoveries are made that may lead the piece in a different direction than originally thought.

*AM: Looking back on the piece, what place does it occupy in your compositional work?*

HW: It’s one of my favourites!