Level up!

Transcending virtual- into hyperorchestration in film music.

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Abstract

In the course of the last couple of decades, virtual orchestration has taken a major rise as the standard tool used by composers of film music. Most films don’t have the budget or facilities to facilitate a recording of the original score, so the composer is thrown back on his own skills to make the music sound. Written orchestrators, coming from classical music composition, and electronic orchestrators, coming from electronic music production, have to learn virtual orchestration in order to be able to accompany the films they’re working on with a realistic-sounding score. Unfortunately, these two types of orchestrators have their own background to deal with, and have little to no knowledge of the other side, which has its effect on the virtual orchestrations they create. The virtual orchestrator needs to know both sides and their advantages and disadvantages in order to take his virtual orchestrations to a higher level. This research provides both types of orchestrators with a series of suggestions to be able to take their virtual orchestrations into this higher level, called hyperorchestrations.
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1. Introduction

Ever since the introduction of samplers in the 60’s and 70’s and the invention of MIDI in 1983, the use of the computer to create music has increased drastically. It was no longer needed to record every instrument, but sampling could fill in the gaps of the instruments or sounds which could not be recorded. The film music industry took full advantage of this with the introduction of orchestral sample libraries. It became possible to create fairly realistic sounding orchestral mock-ups on the computer, which could be used as a final product or were used to layer with live recordings in order to create a bigger overall sound. At the same time, these virtual orchestrations were a great solution for small-budget films which needed an orchestral score. These scores could now be created digitally, without the need to hire an expensive orchestra in order to record the music. As the years progressed, orchestral sample libraries became more and more realistic and available to the public, and nowadays anyone can create a realistic production from their own, however small, home studio.

This development has caused aspiring film music composers to focus on virtual orchestration. This way, they can create any orchestral score they want without having to leave the comfort of their desk chair. When it comes to writing orchestral music for film, there are 2 types of composers; those who have written for live orchestra and those who come from electronic music production, and have only made virtual orchestrations. The first group has had the experience of writing for live musicians, and therefore understands the way instruments blend, what the different timbral characters are, how the instruments work, what their range is, etc. They have learned and mastered to learn all these elements and put their ideas in a clear and comprehensible musical notation. The next step is for the music to be made to life by the conductor and different musicians. They take the written notes of the composer or orchestrator and add their interpretation of the music to it, creating the final product, which is the live performance or recording of the piece. While these composers have a profound knowledge of the orchestra and its individual elements, they lack the knowledge of how to recreate this on the computer using MIDI, sample libraries and plugins, and how these elements can enhance the overall sound of their productions. When they get into virtual orchestration, they are very often still tied to their written notation instead of focusing on the directly sounding result of their production.
Composers coming from electronic music production on the other hand have a very deep knowledge of the use of the computer to create music. They have used samplers, sound processing with plugins, recording and mixing techniques and MIDI in order to create music of which the end result is a virtual orchestration as an audio track. Because their final product is an audio track, they focus on the overall sound in their production rather than notation or instrumentation. This may cause that they may have neglected certain restrictions the orchestrator for live orchestra has had to follow, in order to enhance their final product. They might have increased or decreased the instrumentation as it pleased them, may not have written separate lines for every instrument or included electronic elements in the orchestration. The advantage is that they can create a fairly realistic and big sounding orchestral sound with very little resources, but the music is often lacking a ‘human’ element. This makes it very hard to achieve a sound which is comparable to that of a live orchestra or individual instruments or groups thereof.

Both the writing process and the end result of these groups are very different, and they often have little to no knowledge of the other group. However, in order to enhance their own working practice and the quality of their virtual orchestrations, both types of composers can learn from the other practice and meet somewhere in the middle. Virtual orchestration may become hyperorchestration this way; a full blend of orchestral, electronic and virtual orchestration techniques, which transcend virtual orchestration to a realm where orchestration becomes a full sculpting of the sounding result with all resources available for that purpose.

However, in order for orchestrators from both sides to enhance their virtual orchestrations in this way, they will have to take a step back and have a look over the hedge to their neighbours and see how they tackle problems, what their work process looks like, what knowledge they have to enhance the sounding quality of the product and so on.

This research will try to define this learning process through the following question: ‘How can written orchestrators and electronic orchestrators learn from one another to transcend their virtual orchestrations into hyperorchestrations?’ By investigating how these orchestrators work and analysing how their results sound different, this research aims to create a method to which each aspiring film composer
can relate, in order to enhance the quality of their virtual orchestrations into hyperorchestrations.
2. Terminology

The following chapter will define which types of orchestration we will be dealing with, in order to be able to distinguish them throughout this research. This study concerns composers who come from a written orchestration or an electronic orchestration background. In order for them to write film music, they need to make virtual orchestrations, which will finally transcend into hyperorchestrations. The final term will be defined in the literature review.

2.1. Orchestration

Orchestration, according to Grove Music Online is “The art of combining the sounds of a complex of instruments [...] to form a satisfactory blend and balance” (Kreitner, K. et al., 2017). Nikolay Rimsky-Korsakov highlights the artistic element in the art of orchestration in the introduction of his book Principles of orchestration.

I have tried to show the student how to obtain a certain quality of tone, how to acquire uniformity of structure and requisite power. [...], and reduced these questions briefly and clearly to general principles. [...] Nevertheless I do not claim to instruct him as to how such information should be put to artistic use, [...] a treatise on orchestration can demonstrate how to produce a well-sounding chord of certain tone-quality, uniformly distributed, how to detach a melody from its harmonic setting, correct progression of parts, and solve all such problems, but will never be able to teach the art of poetic orchestration. To orchestrate is to create, and this is something which cannot be taught (Rimsky-Korsakov, N., 1964 pp. 1-2).

Even though this book is largely made up of rules, Rimsky-Korsakov stresses the fact that orchestration is “part of the very soul of the work”. Orchestration is an inherent part of the composition process, and one should “never debase it to the level of a mere collection of formulae learned by heart”(Rimsky-Korsakov, N., 1964 pp. 2).

Orchestration is partly a craft which can be learned, but is for the larger part connected to the art of musical composition.
2.2. Written orchestration

*Written orchestration* is the art of orchestrating music to be performed by live musicians. The end result is a notated score, to be performed by an orchestra. In *The study of orchestration*, Samuel Adler specifies the fact why I call this ‘written’ orchestration in the remainder of this research.

[...], the technique of orchestration entails the abilities to hear instrumental sounds individually and collectively and to transfer these sounds into written notation as accurately and clearly as possible. (Adler, S., 2002, pp. x)

The written orchestrator has a great knowledge of the different instruments, their capabilities, sound characteristics, how to write for them and how to notate this in a score, so the musician has a clear view what the composer wants. The notation provides the ideas of the orchestrator as specific as possible, after which the musicians, and possibly the conductor, add their *interpretation* of the music to it. The interpretation finally dictates the sounding result of the composition, and therefore, the composition may sound slightly, and sometimes even vastly, different from one performance to another. Other factors that have an effect on the sounding result of the composition are for example the hall in which it is performed, the quality of the instruments that is played on, the size of the first violin section, whether the timpanist has had a good night’s sleep and so on. The end result of the composition is always restricted to what the composer can notate. Written orchestrators have little knowledge of sound processing, recording, mixing and MIDI.

2.3 Electronic orchestration

*Electronic orchestration* is the term this research will use for electronic music production. It concerns the use of samplers, sound processing with plugins, recording and mixing techniques and MIDI in order to create music of which the end result is a mixed and mastered audio track. Because every sound we hear has been created on the computer, the composer has all control of the final sounding result. The composer has his own interpretation of the music, which he incorporates in the track by making use of all the effects, controllers and gear he has available to him. The end result of the composition is always restricted to what the software can or cannot do. Electronic
orchestrators often have a great lack of knowledge of orchestral music and the creation thereof (Gilreath, P., 2010, pp. xii).

2.4 Virtual orchestration

Virtual orchestration is defined, as MIDI orchestration, by Paul Gilreath in his book *The guide to MIDI orchestration*.

MIDI orchestration (also known as virtual orchestration) is more than composing and assigning different parts to various MIDI instruments. It is the total process of employing MIDI, samples and samplers, sound modules, processing hardware and software, and recording gear to achieve maximum realism, ultimately creating the wonderful experience and sound of having a true, living orchestra within your own working studio. (Gilreath, P., 2010, pp. xi)

Virtual orchestration is the domain written and electronic orchestrators enter when they aspire to write music for film. When talking about virtual orchestration in this research, it concerns both the emulation of a full symphonic orchestra, as well as using orchestral instruments in any other combination. Film music doesn’t always require a full orchestral score, and neither does a virtual orchestration. In order to be able to create virtual orchestration, the composer has to make use of orchestral sample libraries; which contain pre-recorded instruments in all kinds of articulations, dynamics, combinations etc., which can be controlled using MIDI. The end result is not a notated score, but a fully mixed track, which can directly be used in the motion picture. However, the finished track should possess a certain amount of credibility. In order to achieve this, certain 'laws' have to be applied, which can change depending on the style the composer wants to write in. On top of that, a virtual orchestrator cannot allow himself to deny the physical possibilities of orchestral instruments, because the music would not sound convincing enough (Delissen, B. lecture on virtual orchestration, September 2\textsuperscript{nd} 2015). A profound knowledge of instrumentation as well as electronic music production is essential for the virtual orchestrator.
3. Literature review

The following chapter provides the literature by which both written and electronic orchestrators have to learn their first steps into virtual orchestration with. These books provide a very technical basis of what there is to learn from ‘the other side’. Secondly, it describes the opinions that appear from each side to the other, and which elements each side thinks the other side is lacking or deserving of their attention. Finally, it defines the concept of hyperorchestration, how this is a continuation on virtual orchestration and is the ultimate culmination of written, electronic and virtual orchestration.

3.1 Literature on written, electronic and virtual orchestration

Several books of literature have appeared on the different types of orchestration that have been discussed in the previous chapter. The following chapter will provide an overview of this literature, and how it can be of help for the different types of orchestrators getting into virtual orchestration.

3.1.1. Books on written orchestration

In his work *The principles of orchestration*, Nikolay Rimsky-Korsakov lays down three fundamental axioms on which orchestration is based.

I. “In the orchestra there is no such thing as a bad quality of tone.
II. Orchestral writing should be easy to play.
III. A work should be written for the size of orchestra that is to perform it.”

Within the first two axioms is already implied that when the orchestra sounds bad, it is the fault of the orchestrator or composer. Either the individual tones, which all have good quality in themselves, have been arranged wrongly or the parts have not been well written for the instrument which makes the work hard to play for that instrument, causing the overall orchestration to sound bad. In addition to this, he stresses that only a composition that is well structured and well written in terms of the notes themselves can be orchestrated well. The orchestration cannot save a bad piece of music.
The third axiom is applied by giving measures on a well-proportioned orchestra and by giving examples on how to adapt a passage of music when it is re-orchestrated, so it would fit and is well written for the new instrumentation of the passage.

*Principles of Orchestration* provides the written orchestrator with a series of practical ‘rules’ by which to achieve good-sounding results. These rules concern matters such as separating melody from harmony or making a chord sound properly and well-divided through its voices, and are all based on the different instrumental groups of the orchestra; strings, woodwinds, brass and percussion. Examples of this are given from his own work, and by giving good/bad examples after the provided theory (Rimsky-Korsakov, N., 1964).

Another work on orchestration is the modern-day standard by Samuel Adler; *The study of orchestration*. The first section of this book provides an in-depth look into the different groups of the orchestra, and the individual instruments that are a part of these groups. The overall characteristics and corresponding techniques of the instrument group are explained, after which an extensive overview of all the different instrumental families and instruments is given. The basic mechanics are explained, as well as sound characteristics and playing techniques. After an instrumental group is presented, a chapter follows on writing for that instrument group, in which the student is enabled “to get to know the most effective uses of each instrument within orchestral settings of each musical era”. This applies to the instrumental group in itself, as well as in combination with other groups.

An important notice presented in these chapters is the idea of foreground-middleground-background elements. These elements are presented as follows:

1. “Foreground: the most important voice, usually the melody, which the composer wants to be heard most prominently;
2. *Middleground*: countermelodies or important contrapuntal material;
3. *Background*: accompaniment, either chordal or using polyphonic or melodic figures.”

Throughout the book it is explained how each instrument group can occupy any of these three elements in combination with every other instrument group and in the context of the entire orchestra.
Throughout the book, Adler emphasizes that the skill of orchestration is being able to hear sounds and write them down in musical notation as clearly as possible. For each technique that is given, Adler gives an example with a score from orchestral literature in which the technique is used. This way, the student can listen to the example by using the CD's accompanying the book to learn the sound characteristics of each instrument and instrument group, and in the meantime learn how to properly notate the technique in the score and parts (Adler, S., 2002).

These books give the written orchestrator a great comprehension of the mechanics of the different instruments, instrument groups and the orchestra in itself, how his ideas can be translated to a notation and how he can make sure that his ideas will sound well. They provide the basic knowledge from which the written orchestrator can draw to get his works for live orchestra to sound good and be notated properly.

For the electronic orchestrator, the most important parts of these works are the chapters in which the orchestral instruments are explained in their possibilities and impossibilities. In order for the electronic orchestrator to be able to keep the laws that he needs to keep in order to create convincing virtual orchestrations, these chapters provide a good basic knowledge from which he can draw to be faithful to an instrument’s capabilities. Another great tool to use is the concept of foreground-middleground-background, as presented by Adler. This provides a great framework on which any orchestration can be structured, whether it is written, electronic or virtual.

A topic these books don’t cover is interpretation. The matter presented in the books is always covered in musical notation. The final performance is always dependent on what the performer does with this notation. For the written orchestrator getting into virtual orchestration, this causes the problem that his knowledge of musical notation becomes less valuable. Because the end result is a mixed track, the notation falls away, and the composer has to put a lot of time to get the interpretation of his work into his virtual orchestration, which requires a great knowledge of the workings of sample libraries and MIDI.

### 3.1.2. Books on electronic orchestration

*The Cambridge guide to electronic music*, edited by Nick Collins and Julio d’Escriván, is an collection of academic articles by different authors covering the history of electronic music from its first stages towards the present day. It gives a scientific, aesthetic and
historical background of electronic music and the creation thereof. It introduces the
different types of electronic music and the different techniques that have been used
through the years and how they can be used by the electronic orchestrator. It doesn’t
provide the orchestrator with practical tips and know-how in order to create the music,
but it gives the framework in which this can be done. For both the written and electronic
orchestrator this will give a great insight in the history and aesthetic issues that arise
when working with electronic music, but the written orchestrator will not be taught
exactly how to work with MIDI and sound editing and processing (Collins, N. &
d’Escriván, J. (Eds.), 2007).

A good work that does cover this information is *An introduction to music
technology* by Dan Hosken. The aim of the book “is to provide a clear overview of the
essential elements of music technology in order to improve students’ understanding and
use of technology in their music performing, creating and teaching” (Hosken, D., 2011).
It is designed as an accompanying book for an educational course, and is a combination
of information in text and visuals along with exercises for the student. The book
provides all the essential information through five sections. The first section, Sound,
covers how sound works biologically and scientifically. The second section, Audio,
covers how sound is captured on the computer, how it can be processed in different
software and what soft- and hardware is needed to achieve this. The third section, MIDI,
covers how MIDI is recorded and edited, with the use of different controller lanes and
the modulation wheel, and what soft- and hardware is needed to achieve this. The fourth
section gives an in-depth overview of how sound synthesis and sampling works, and
how to make your own sound sets. The final section deals with computer notation
software and an overview of computer-assisted instruction as a tool for music
education. The appendix gives an overview of the basic hardware and software that is
needed to be able to set up your studio.

While the book gives a great overview of all the different techniques that are
available, it sticks to these essential elements that are needed in order to get started
with electronic music. The written orchestrator will therefore make great use of this
book in order to get into the realms of DAW’s and audio processing in order to start
making virtual orchestrations. However, the information remains very technical, and
there is nothing covered on the creative use of the different elements that are discussed.
They are just presented, and it is up to the composer to find out how these elements can
be used in a creative way. Interpretation, and how this can be achieved by the composer by using all the different controller lanes available is again left undiscussed, and left for the composer to play around and work with.

### 3.1.3. Books on virtual orchestration

The main content of Paul Gilreath's *The guide to MIDI orchestration* is a large section on classical orchestration, and how this can be achieved by using samplers and DAW’s.¹ The first chapters of *The guide to MIDI orchestration* provide similar information to Adler’s and Rimsky-Korsakov’s works. They contain information about the different instrumental groups of the symphony orchestra, however less detailed than in the earlier discussed books. In the later chapters, each instrumental group has a chapter titled “Sequencing technique for …”, in which guidelines are given on how to write for this instrument and how as much realism as possible can be achieved. The starting point of the explanation is always musical notation, and tips are given on how to achieve the technique that is to be sequenced. Attention is also given to add the ‘human’ element to virtual orchestrations, by incorporating breathing brakes for wind players, bow changes for string players and natural tempo changes; these are elements which can help add the composer add their interpretation to the virtual orchestration.

The technological part of the book is further elaborated upon in chapters on practical tips about different hardware and software elements needed in order to be able to create virtual orchestrations and chapters on audio effects and mixing and mastering techniques which can be used in order to enhance the realism of the virtual orchestration even further. The explanation of these effects is supportive of the recreating of the orchestra in the concert hall environment. In his review on the third edition of *The guide to MIDI orchestration*, John Walden from *Sound on sound magazine* says:

> It ought to appeal to those with a knowledge of music technology who also want an accessible introduction to the craft of orchestral composition (Walden, J., 2005).

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¹ Digital Audio Workstation; computer software used to record, mix and master MIDI data and audio files, or in short, the software needed to create electronic and virtual orchestrations.
This book is in its essence a guide to orchestration, like the one Samuel Adler provides, but now in the context of creating a realistic sounding result on the computer. Everything that is written starts from musical notation and is used in service of the classical orchestra and the recreation thereof (Gilreath, P., 2010).

In the introduction to *Acoustic and MIDI orchestration for the contemporary composer*, authors Andrea Pejrolo and Richard Derosa argue that the aim of the book is to “provide a concise and thoughtful method in each area in order to provide the reader with the knowledge necessary to function as a music creator in the twenty-first century” (Derosa, R. & Pejrolo, A., 2017). These two areas concern written and electronic orchestration, and therefore the book aspires to create a coherent approach for both types of orchestrators. Like Gilreath’s work, it provides the reader with basic orchestration and sequencing techniques, with additional chapters on the rhythm section and the vocal ensemble, and this is still very much grounded from notation and the concert hall environment.

Besides this, the work goes further in practical tips compared to *The guide to MIDI orchestration*. There is a chapter devoted to what to look for in sample libraries, and on how to set up a recording session and how to take the most out of the session within the given budget, how limited this may be. Additional information is given on the human element, with extra instrumental sounds that could be incorporated and should be taken into account, as well as discussing what one human player could do for the liveliness of the orchestra.

Written orchestrators will find these two works very comprehensible books, because it provides them with sequencing techniques which are grounded in musical notation. Besides this, they provide them with techniques to digitally recreate this what they already know: the orchestra in the concert hall environment. Therefore, this book will provide a great first step into virtual orchestration for the written orchestrator. For the electronic orchestrator it is a great introduction into classical orchestration within the context of what they already know, and how to use their knowledge to recreate an orchestra digitally. Besides this, the information provided in *Acoustic and MIDI orchestration* will give some first tips in order to enhance the human element incorporated in the virtual orchestration (Derosa, R. & Pejrolo, A., 2017).
3.2. Thoughts on one another

In order to be able to learn from the other side, orchestrators need to have a knowledge thereof and be open for this practice in order to let it influence their work. Several sources have appeared on composers from either written orchestration or electronic orchestration to shed their light on the other practice.

For the sake of this chapter, electronic and virtual orchestration are treated as one, because this concerns the use of the computer to create music, which is opposite to writing for human players to create the music.

3.2.1 Thoughts from written to electronic/virtual orchestration

In her series “Teaching composition in twenty-first century America”, Marilyn Shrude interviews several composition teachers in the United States on their teaching practices, and one of the questions concerns the entrance of music technology in the classroom.

In her interview with Samuel Adler, Adler states he dislikes electronic music, because he adores the human element that is present in live performed music. The idea that a conductor can have another view of the piece that he has written than himself is a good concept and something that is a vital difference between electronic music and live performed music (Shrude, M., 2008. pp. 18).

In another interview, William Bolcom describes the effect music software has had on written pieces has strongly altered the outcome of the composition.

And every single piece was completely bound to what the software could or couldn't do. And I said, “Do you realize this machine is running your life?” (Shrude, M., 2010. pp. 10).

Later in the interview, he stresses that orchestrations have become flat and unalive, because students haven’t had experience with real orchestras. They forget that the note is something more than the note just being played; it is a note that is played by a human being.

As becomes clear in these interviews, classical composers have a negative view on the use of MIDI and music technology on the compositional process, because the composer is bound to the technology, and most importantly, because the composer might forget that a human being playing any composition adds a whole new layer with
their interpretation in a performance. The other element of this ‘human touch’ is the fact that humans can do things that computers might not be able to do, and the risk for the virtual orchestrator lies in the fact that you restrain yourself to the abilities of your software.

### 3.2.2 Thoughts from electronic/virtual to written orchestration

In an article in the online Soundbytes magazine, composer Jerry Gerber, who writes classical pieces that are made alive not by performance but by virtual orchestrations, stresses the fact that it is important to know the concept of orchestration. Elements thereof that are applicable to virtual orchestration are transparency, orchestral weight and orchestral balance, whether you virtually orchestrate with orchestral instruments or other elements such as software synthesisers.

Secondly, he puts an emphasis on the ‘human element’ as well, by saying that “the composer is not just writing the music, but also interpreting the music through programming and mixing.” This is a highly time consuming endeavour, for which he takes the majority of the time spent on the piece to do it properly (Gerber, J., 2016).

A virtual orchestrator, coming from the realms of electronic orchestration, who has devoted an entire article to the human element in his orchestrations, is Troels Folmann, multi award-winning game and TV composer and the CEO of 8dio sample libraries. In his blog post “Perfect imperfection” on his sample library’s blog, he argues that in search for perfection in our virtual orchestrations, we should try to add a level of imperfection which is so inherent to live performance and the emotion a performer brings to a piece of music. Composers could apply this by not overusing the quantization function, which will make the music sound mechanically in terms of rhythm, and by sample library developers to look at the “performance quality of samples” (Folmann, T., 2015).

Above opinions remain quite positive about written orchestrations, but there is critique as well. Sergi Casanelles highlights the restricted nature of a written orchestration. Orchestral music has been subject to a standardization process throughout the ages, which has been extended in the written score, which is a very restricted medium.

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2 Quantization is a technique in a DAW which automatically places the notes on a grid of the composer’s choice, mostly on a set note value.
The score represents an acceptable notational system to generate orchestral music created and performed in an extremely controlled environment. Therefore, instead of representation of the sound, the score is really a blueprint for the instrumental performers to produce sound. However, modelling Western music as a controlled environment comes at a price: it neglects an extensive array of musical features that do not fit within the restrictions imposed (Casanelles, S., 2016).

3.3 Preliminary conclusions
The literature discussed provides an extensive insight into the practices of electronic, written and virtual orchestration and how each side thinks of the other. This chapter provides the most important elements which remain open for this research to further elaborate upon in terms of creating virtual orchestrations.

3.3.1 The ‘human element’
The human element is the greatest advantage of written orchestration. The interpretation of a flesh-and-blood human being is what makes the music so interesting and lifelike, and this is something that is not covered in the provided literature. A living orchestra or breathing performer is very hard to recreate in a virtual orchestration. The literature only covers this element to a certain amount. Gilreath mentions technical techniques which can be used in terms of breathing and bow changes, Gerber mentions that the addition of the human element is a time consuming process, Derosa and Pejrola give additional sounds to incorporate and several tips and Folmann emphasizes the rhythmical side of things. The virtual orchestrator needs to have experience with a human player in order to really know what all these elements sound like.

3.3.2 Restrictions on written and electronic orchestration
As we have seen, both written and electronic orchestration have their restrictions in the creation of the final result. Written orchestrators have the limitations of their orchestra and the concert hall, electronic orchestrators have the restrictions of their software. These restrictions will be something they take with them when they enter the realm of virtual orchestration, where another restriction rises when sample libraries have their restrictions in creating a convincing orchestral sound. The challenge for each
orchestrator is to find out how to overcome these restrictions with knowledge of the other side in order to enhance their virtual orchestrations.

### 3.3.3. Notation vs. sound

The literature that is provided on virtual orchestration still mostly emphasises on notation as a starting point, after which this notation is put to a virtual orchestration. Where notation is a good way to write down compositional ideas, the notation itself becomes obsolete when we enter virtual orchestration. Since the end product is a sounding track, the composer has to focus on how his instruments sound, and not on how the parts are notated. He can let the score template go, and doesn’t necessarily has to write for an instrumentation which is set beforehand. Virtual orchestration is best utilized when it is approached with sound as a starting point instead of notation.

### 3.3.4. Virtual orchestration in practice

Most information that has been covered in the literature is very theoretical, and is some distance away from the actual working practice of virtual orchestration. Gilreath’s work, for example, still approaches virtual orchestration from the realms of music notation, while in the meantime still approaching it in terms of recreating a full orchestra in the concert hall. However, DAW’s don’t work with musical notation and virtual orchestration doesn’t necessarily require the recreation of the full orchestra in the concert hall. This is of course an important concept to master as a virtual orchestrator, but virtual orchestration becomes most alive when this concept is let go and other elements, acoustic and electronic, might be introduced. Virtual orchestration has grown towards hyperorchestration.

### 3.4 Hyperorchestration

*Hyperorchestration* is a concept developed by composer and teacher of Film Music composition at the New York University Sergi Casanelles. In his article *Mixing as a hyperorchestration tool*, he defines the hyperorchestra as follows:

(...)

(...) a virtual music ensemble that inhabits hyperreality, a product of the combination of virtual instruments (sampled and synthetic), real live recording sessions and sound processing. (Casanelles, S., 2016, pp. 58).
Hyperorchestration is the craft of writing for the hyperorchestra. Hyperorchestration is the superior stage of virtual orchestration, when techniques of written, electronic and virtual orchestration are combined in order to create a final result which is fully sculpted in terms of sound. Orchestral instruments, whether they are recorded or used from a sample library, can be processed slightly or placed in a different area in the stereo field than where they would be in a classical orchestral setting. It is a form of orchestration where a high level of realism is achieved, but this is subsequently processed without losing its realism, or even adding new layers to it. As

Hyperorchestration principles, according to Casanelles, are divided in the following five concepts:

I. **Aural fidelity.** “The fidelity of a sound does come from it being perceived as realistic. (...) a particular sound perspective would tend to sound realistic even though it might not be reproducible in the physical world.”

II. **Music interacts more with the full sound spectrum of the film.** “(...) the capacity to actively modify the sound properties of the music and to adjust the frequency spectrum of the sound facilitates the interaction with the rest of the soundtrack.”

III. **Sounds of instruments can be fine-tuned to the needs of the orchestration.** “Music becomes a process of sound sculpting, where the sound details are relevant.” This also includes “a multicultural approach to instrumentation”.

IV. **Music that is qualified as non-diegetic can shape the diegesis, so it will be perceived as diegetic.** “(...) an approach to music making, where melody, pitch and harmony are not dominant, facilitates the generation of a musical soundscape that stays in the background, helping to shape the overall diegetic space, (...).”

V. **Music creation is a non-linear process.** “Different hyperinstruments and instrumental sections are generally recorded at different times – some of the recorded material may be used as samples and part of the music will originate in the computer. Everything is then mixed and processed together” (Casanelles, S., 2016).
Hyperorchestration is the term that will be used in this research to define the highest stage of virtual orchestration.

### 3.5 Conclusions

With the information from the previous chapter, and as an introduction to the remainder of the research, we have defined the following chain of events:

1. Written and electronic orchestrators get into virtual orchestration. The literature provides them with knowledge from the other side, and they create virtual orchestrations. However, these orchestrations are restricted in their nature because of the background of the composer.

2. Written and electronic orchestrators, who are now into virtual orchestration, are intensively learning techniques used by orchestrators from the other side. They investigate how they approach their composition process, how and why they make certain decisions, how they overcome problems in the writing process etc. Written orchestrators can learn how electronic orchestrators process and sculpt sound, what recording techniques they know, their focus on sound etc. Electronic orchestrators can learn how written orchestrators approach interpretation, what a human being adds to the written notes, what instruments can do etc.

3. The elements learned in step 2 are incorporated in their virtual orchestrations, which now transcend into hyperorchestrations.

This results in the following model:

![Figure 1: model on the different kinds of orchestration](image)
The core element of the remainder of this research is step 2, which provides the information that is ultimately needed for written and electronic orchestrators to enhance their virtual orchestrations into hyperorchestrations.
4. Methodology

This chapter will define the research design, the participants, the way data is collected and the analysis of the collected data.

4.1 Research design

The type of research that will be conducted is a qualitative research. Qualitative research “allows a researcher to see and understand the context within which decisions and actions take place. (...) it is the context that helps to ‘explain’ why someone acted as they did” (Myers, M., 2013, pp. 5). This study focuses on trying to grasp why composers make certain choices in their writing process either on written orchestration or electronic orchestration to achieve certain results, and will try to explain how these choices can enhance the overall quality of virtual orchestrations into hyperorchestrations. The aim is to find out what practical elements can be adopted from one practice to another. Therefore, a qualitative approach to this research is the most appropriate.

4.2 Data collection

The data will be collected using interviews with written and electronic orchestrators. Interviews give the researcher the possibility to delve into the working habits and decision-making processes of written and electronic orchestrators. Semi-structured interviews will be used, because this gives the researcher the room to come up with new questions during the conversation, in order to delve deeper in a topic the interviewee has come up with (Meyers, M., 2013, pp. 121). The questions will be open-ended, to give the interviewee room to shed their own light on the question, and perhaps to add another note which might be relevant, but has not been explicitly asked for in the question. The interviews will be conducted in the native language of the interviewee, and will be recorded if the interviewee grants his permission. After the interview, the interview will be transcribed in a text document, which will be sent to the interviewee for his approval. The interview questions and final transcriptions will be included in the appendices to this research when they have been written. The questions will be based on the working process of the composer, the points from chapter 3.3 and the questions that have been described under step 2 in chapter 3.5.
For these interviews, four participants will be selected: two coming from the world of written orchestration and two coming from the world of electronic orchestration. It is possible for both types of orchestrators to have or have had experience in writing virtual orchestrations. One part of the interview questions will be similar for both types of orchestrators. The other part will consist of specific questions for that type of orchestration.

The participants have to meet the following requirements:

Written orchestrators should:
- have a profound knowledge of classical, written orchestration and the elements on written orchestration that have been discussed in the previous chapter;
- have written a considerable amount of works for live instruments;
- have had performances of these works were he has been present;
- still be writing pieces for live musicians;
- be able to formulate a substantiated opinion on electronic orchestration.

Electronic orchestrators should:
- have a profound knowledge of MIDI sequencing, mixing, sampling techniques, sound processing and the elements on electronic orchestration that have been discussed in the previous chapter;
- have written a considerable amount of pieces of which the end result is a finished track;
- still be writing pieces of which the end result is a finished track;
- Be able to formulate a substantiated opinion on written orchestration.

It is expected that electronic orchestrators have had a considerable amount of experience in virtual orchestration.
5. Research

This chapter will provide the most important findings from the interviews conducted for the research. First, the thoughts on their own fields and the other side will be presented, after which some ideas about the workflow are presented. Then the preliminary conclusions will be discussed, followed by some general remarks. All of this is done for both the electronic and written orchestrators.

5.1 Thoughts on one another
All interviewees have been asked what they thought the biggest advantage and disadvantage is for their respective field and the other field discussed in this research. This will give the hyperorchestrator an insight in the pits and downfalls to watch out for, but to find the strengths of both fields as well,

5.1.1 Thoughts on electronic orchestration
One of the perks of electronic orchestration, that is confirmed by both written and electronic orchestrators, is the practical side of things. Electronic orchestration is a great tool, especially for young and starting composers, to quickly get a sounding result, without having the need to hire an orchestra to play it for you. Electronic orchestrator 1 (Paul Deetman) states:

I’m very happy when I write something that I get immediate feedback of what I am writing. What kind of harmony, what kind of melody, do they fit together? But also the sounds altogether. I really like the feedback, and think this is a huge advantage, that I don’t have to wait for an export.

This quote illustrates the practicality of electronic orchestration in the sense that you can hear directly how your piece will sound. Written orchestrator 1 (Wim Henderickx) adds to this by saying that: “Sibelius\(^3\) is a very useful programme to follow the timeline, the form, the proportions and to evaluate these. (...) Even after all these years of experience I still think this is the hardest thing about composing.” This element from electronic

\(^3\) Software programme used for music notation. The software plays back the music you’re writing.
orchestration provides a great tool to keep track of the piece you’re writing. Next to these elements, the practical advantages are further confirmed by the fact that electronic orchestration is less time-consuming and generally cheaper to get a sounding result. So practically speaking, “There are no limits”, according to Wim Henderickx.

Another advantage of electronic orchestration is the fact that you can enhance sounds that the orchestra or orchestral sample libraries produce, without having to lose their realism. Deetman gives some examples of this:

Sometimes I have a lot of horns and I might throw some roaring synth on top of it that sounds very ugly as a horn in itself, a sort of emulation of an FM-synth that tries to be a horn, which is never good. You don’t hear it, but it has some kind of raw edge that the horns in itself don’t have. This in combination with one another might give a smashing effect that sounds great. (...) You get the feeling it sounds more aggressive because you added the synth to it, but for most ears it is not really clear how this has happened. A trained ear might hear that a big synth has been added. (...) Yes, it is about those kinds of hacks. That’s all included, it should be. (...) Sometimes you’re cheating a bit, in order to get the effect you want.

In this example we see the first principle of hyperorchestration, ‘Aural Fidelity’, put into practice. The advantage of electronic orchestration is the fact that you have an infinite amount of these tricks at your disposal in order to enhance or sculpt a sound to get it just the way you want or that would be right for the film or project you’re working on. It could still sound realistic, even though it is not reproducible in an acoustic setting.

Henderickx uses these principles in his written orchestrations, but warns an orchestrator for the pitfalls of this idea. “I think you shouldn’t try to suggest an amplification of a sound in your orchestration. You can suggest it, but you shouldn’t try to fully realize it.” The danger lies in the fact that the sound could become too far detached from the actual sound people are used to and expect to hear, and you shouldn’t try to realize something which can’t be recreated acoustically.

When this is done, however, Electronic Orchestrator 2 (Bart Delissen) says that this could be embraced as an instrument of its own:
When you would program it really tight on the grid as well, so tight that no human could ever play it, and just appreciate it for the sound it is, then you approach it as a digital instrument or a synthesiser. You shouldn’t write super realistic music around it; you should add synths and drums in that case in order to create a more abstract sound. It is the craft to keep doing this.

In this case, it is the focus on the sound of the composition. If an instrument sounds as if it couldn’t be realized acoustically, then this should be used as an instrument in itself in the context of the sound of the orchestration.

The disadvantages of electronic orchestration are mostly concerned with the fact that electronic orchestration is an electronic reproduction, and lacks a human playing the notes. Deetman states electronic orchestration lacks character which an orchestra does have, while Written orchestrator 2 (Theo Verbey) states:

As soon as it comes from speakers, something is lost already. (...) Interpretation already starts with a scale. When multiple people play a scale, even when you say it needs to be the same tempo and the same scale, there are already interpretation differences. It starts with a very basic level. You understand I think it is a very important part of the whole. I delegate it to the musicians, I don’t meddle with it.

Verbey states here that as soon as something is done electronically, and comes from speakers, the subtle differences in interpretation, that are present in the smallest of details already, are lost.

5.1.2 Thoughts on written orchestration
The major advantage of written orchestration that was acknowledged by all orchestrators was the fact that humans and the mistakes they make or differences in interpretation they have add an extra layer to the music. Verbey states: “In the concert hall you’re really dependant on the quality of the orchestra. This can’t be controlled as well. But this is at the same time the advantage, so you get different versions.”. These different versions that can exist of a piece are the major advantage according to Verbey, because each and every one of them is as beautiful as the other. Deetman adds to this by saying:
“When it is played by an orchestra, there are not necessarily mistakes, but the messy elements that make it sound more beautiful and give it more character.” These are the elements that make written orchestration and working with live musicians go one layer deeper than electronic orchestration. Henderickx adds that working with an orchestra or a live player can even enhance the piece further, and they can take out possible mistakes you might’ve made or work on things that might work better. He also argues that knowing an orchestra well is a big advantage in writing for it. “I’ve had an education as orchestral musician, which I think is a special advantage as a composer.”

On the other hand, Deetman argues that not knowing the ‘rules’ of classical orchestration might be a relief sometimes, and might make you come to new, creative ideas.

Sometimes I think I want to know more rules, but by not knowing the rules I might makes mistakes which ask a different question in the music. That is quite interesting. I don’t know that when I would have known the rules if I would’ve done it in the same way.

5.2 Workflow
All interviewees have been asked to give a brief description of their workflow when orchestrating a piece. The most important elements which might be of value for the hyperorchestrator are presented in this chapter.

5.2.1 Workflow of electronic orchestrators
For electronic orchestrators, as for the modern film composer, time is often something that is very scarcely available. Therefore, the workflow is often shaped to meet this requirement of writing under a very tight deadline. The start is done from some small material, after which the skeleton is put in place very fast for the entire piece. The important thing, according to Deetman, here is not to get into the details too quickly, because they can take up a lot of your time.

When I am really fast, I’m working somewhat on a tight schedule, you have to be really careful that you don’t go in the details too quickly. You might lose yourself
in 5% of the entire arrangement. This is why it is often very difficult or why you might get a writer's block because you are stuck in the details.

Another important notice is the fact that they work with the sounds they have at their fingertips. It is often the sound of something that triggers the next step in the orchestration. Deetman: “I let the melody or the sound itself determine what my next step will be.” A very important notice here is that the orchestrator knows the sounds he is using, and knows what their strengths and weaknesses are. When talking about trying to achieve different effects in the orchestration, Deetman says:

You should really know your libraries to find the effects. (...) When it can’t do it, I have the choice to buy a new sample library that can do it. When this might be too expensive or not efficient enough, I might build around it.

Delissen adds to this with an example on trying to achieve activity in an orchestration.

A good tactic is to see if you want the sound or the activity. When you don’t want the strings to lay flat and say a trill would be good. If you don’t have them, get a tremolo. It has some resemblance. When you’re not too critical and want some activity to take place, you could do that. You can’t make something that you don’t have.

Deetman also admits that guitars are very hard to emulate, so in order to avoid this he either hires a guitar player to work on the piece in the studio, or not to take the job. He knows his libraries and what they can and can't do, and can construct his workflow around these strengths and weaknesses.

Bart Delissen adds a step before he starts writing in his sequencers. He takes some time to think of the sound concept of the piece before he starts writing:

What does the product need? What does the client want to communicate with the product? Can we create a concept from this? From this I do my research on what sound or production value the product needs. (...) I think it’s important to spend
time on this, and take the role of the conductor in this process, by also studying beforehand. Then I’m working on the final sound pretty quickly already.

This takes some more time, but will give the piece a coherent sound concept, in which he can add very personal elements that really make the piece ‘his’. The moment that you think of what you want to make; you can really put yourself in a way that is different from what you’ve heard until now. You can really take advantage of this.

### 5.2.2 Workflow of written orchestrators

One thing electronic and written orchestrators have in common is that they start small and expand from this later. However, for written orchestrators this often starts with sketches which are not for orchestra. The piece is laid out first, after which the orchestration begins. Henderickx says: “The first sketches are like that. The first sketches are never for orchestra or are never in the big score because I let myself be too distracted by all the possibilities and the big paper”. When he continues writing and developing the piece, the orchestration happens directly. “Orchestration is already really soon in my first sketches. I think directly for the medium, the instruments for which I am writing. I’m not writing lines for which I say afterwards where it should be. I hear directly where it should be.” When Verbey makes an orchestra of an existing piece, he makes sure he understands the score first before he orchestrates it.

What I do first is to study the score, in this case for piano and voice, very carefully. There’s always a harmonic analysis involved; from A to Z, do I really understand these chords, in roman numerals and with all modulations. Also when it is very complicated or can hardly be done at all, with composers such as Webern; when it is somehow structurally understandable, this is what I do first. After this, I make some notes with what comes where, and then I complete it.

He works mostly in a horizontal way, by writing down the most important melodies and lines first. “I work very little in a vertical way”.

An important difference with electronic orchestrators is the fact that the written orchestrators don’t hear directly what they write, but instead they have to imagine the sound they are writing down. Verbey states: “Sound imagination stays difficult. Even
when you do it for a very long time; it is not taken for granted”. But they both emphasize that this is an important element that enhances their creativity. Henderickx states:

The only thing I think that might be useful is that your imagination is enhanced. This goes both for the virtual as the acoustic orchestrator. You imagine the sound yourself, and by doing this more and more you make a sound which is more of your own. Otherwise, you just do something and copy that what you know from other scores, sounds or recordings. When you imagine, or try to imagine the sound you will start to think differently.

Finally, we see a lot of time of written orchestrators deployed to thinking of the concept of the piece, and working this out first before starting on the sketches. All the ground rules are put into place before the piece is written and orchestrated. This helps them to overcome possible restrictions, and give the electronics that might be used in the piece a purpose, because it is defined in the concept of the piece what the electronics are there to do. Hendrickx, when talking about when he uses electronics in his pieces:

Usually directly while thinking about the concept. (...) It’s not just something that gets added, it is already present in the conceptual phase of the creating. It’s not that I think: “Let’s throw in some electronics”. It’s very essential, otherwise it is not balanced enough, and then you get the relationship between tape and acoustic instrument. They have to blend together and it should have a purpose. This is something I always believe in multimedia; the things you do need to have a purpose.

5.3 Preliminary conclusions
The preliminary conclusions as described in chapter 3.3 provide some first differences between electronic and written orchestration from which the hyperorchestrator can learn. These conclusions have been discussed with the interviewees, with the exception of 3.3.4. ‘Virtual orchestration in practice’. This is a conclusion that will be discussed in the suggestions for the hyperorchestrator.

5.3.1 The human element
The human element is one of the hardest things to recreate in a virtual orchestration. Deetman says that programming this in the DAW is usually the most time consuming part. A solution to this is could be to record a solo player to add to the mix. “In the automation of the software I would go with the expression. It makes life a bit easier. If I press it more in the mix I make it do the work, and the others are more back-up to make it a bit fatter.” In this example, the recorded player would be added to the mix to enhance the expression which is programmed in the software. Delissen has the same experience with a recorded violin player. “It was just recorded in a relatively dry office space, and you could still edit it, but you do have the distance of 6 meters. You don’t want to hear every crack or every little detail when it should be the first violin in an orchestra setting. You put this in the reverb that you have on your entire virtual orchestration, and with a bit of mixing and producing you have your first chair violin.” For Henderickx, using a solo player is an opportunity to get the most out of the music and the performance. “Then you write even more for the player, and then you get a perfect symbiosis between the physical aspect of what someone can do with their instrument and the character someone has as a performer. So those 2 are fully connected in that case.”

Working with a soloist or multiple performers on a piece have more advantages than just making the music breathe more. According to Henderickx, a orchestrator should know the physicality that comes along when writing for an instrument.

I think you should orchestrate with the physical possibilities and properties of the instrument. (...) I think the physical quality is the thing that makes the biggest difference between virtual orchestration and real orchestration, because you’re working with people and with physical qualities of people. This means that when you virtually orchestrate you can make the trombone player play as fast as you want without him having to breathe. You can do anything, and that’s not realistic.

Next to this, mistakes a human might make in the writing process or the recording or the writing process can add a new layer to the composition and might inspire your creativity. “Even though you’ve constructed the Sibelius or Finale timeline in such a good way, experiencing it live and having the feeling that you’re working on it, there are still surprises. That’s what I find fascinating about making art and making music, that these
surprises have this sense of unpredictability, and this is what makes it exciting and fascinating. Otherwise, you would trust and reproduce on your auto-pilot.”

Finally, humans add subtle interpretation differences that are very hard for an electronic orchestrator to recreate. Instrumental players are specialized in communicating your music to an audience. You tell what the music needs to convey to the audience, and the musician translates this to his or her interpretation. This can differ from performance to performance and from recording to recording. Verbey states:

That there are different interpretations generated from the same score is actually really beautiful. This is really what a captured sound version doesn’t have. You can have some versions of the same piece next to each other which are all good but different.

Delissen adds to this from an electronic point of view. When he wants to recreate these differences in interpretation, he tries to take the role of the conductor in the writing process, and analyses how each instrument he has played in himself might react to all the other lines that have been played. Because he plays all the lines himself, there are subtle mistakes in the orchestration, and he’ll analyse whether these mistakes can stay or not.

I think that when you approach this as some kind of conductor, to study how these instrument behave in relationship to one another, that you get more towards something that is realistic than you save up for the most expensive samples, that might sound nice. When you don’t know how they should be placed among each other or how they should react, then it would still be a very tight and dull production.

5.3.2 Restrictions
As we have seen in the preliminary conclusions, both electronic orchestration and written orchestration have their restrictions which could be overcome in hyperorchestration. Both orchestrators have been asked how they deal with the restrictions that they face.
As we have seen earlier, sample libraries can be used to their advantages, but the orchestrator should also be aware of the disadvantages of the sample libraries they have in their arsenal. Deetman states: “When I don’t have the desired software and I don’t get the desired result, it might be that you don’t have the inspiration or you don’t have the right libraries who can handle that or have the right expressions or articulations. This should happen in your creativity that you want to achieve and you even know what it is.” In this scenario, the restriction can only be overcome by acquiring new sample libraries or to get a solo player involved who could play the expression the library doesn’t have.

Next to the restrictions of the sample libraries, the electronic orchestrator could be limited by his hardware. Delissen offers a solution for this by looking at what density of sound you need in the orchestration in terms of the amount of instruments that are loaded in the sequencer.

Sometimes you’ll have to cut on something. You have to see what you really need or what is there just in case you really need it but is not essential. This richness of sound is not needed then, so it is important that you meet your computer. So you have to look what you want if you don’t have to take anything into account, as opposed to what you really need that you’re not limited by your computer.

As the electronic orchestrator writes for the libraries he has, the written orchestrator should write for the instrumental groups that are a part of the commissioning orchestra. Henderickx: “It can work inspiring, when you see for what group you’re writing. I think when you have the feeling this orchestra has a good brass section, I find it evident to put this central in your imagination of the sound. Or the other way around.”

For the electronic orchestrator, restrictions that are found in written orchestration don’t have to be seen as a restriction, but rather as an opportunity. It can be a creative tool to use a trick that avoids such a restriction, in order to tell a story. Deetman provides an example on this subject:

I think it is actually quite beautiful that rules are being broken all the time. (...) He (Hans Zimmer) wrote some strings just below the note that is playable, just to offer the subconscious something that sounds a little strange, or sounds a little
off. There is something different about the music, even though it sounds familiar. I think it’s nice when you try to tell an extra story about the other story. Just by listening to the music you might get some of the questions and the answers of the story, rather than just with the music combined with the image. No, I think it is quite interesting that you can experiment.

In this example, the strings are going past the regular restriction, which adds to the overall sound of the composition and helps to tell the story. For the written orchestrator, this might give several practical problems.

Written orchestrators are less concerned with the restrictions the classical orchestra provides, because they work with the orchestra that is given to them, and work around the restrictions that might appear. In this way, what might seem as a restriction doesn’t feel as a restriction. Verbey states:

"Restriction does sound as a negative thing; I need a fourth trombone, that would have been nice. You might come with better solutions when you don’t have this specific instrument. I’ve never had the feeling that something might have been a genius masterpiece when I would’ve had this one instrument. I don’t believe it is dependent on that. You try to create coherence between the apparatus you need and the piece you are writing."

Henderickx adds to this by saying "You’re restricted by the fact that each instrument has its restriction. The instrument has its restrictions and the player has his restrictions. That’s true, but in the restrictions we can see the master. On the one hand you want to break through the restrictions, but on the other hand you have to accept them."

5.3.3 Notation vs. sound

Each type of orchestrator has their own final product; for electronic it is a sounding product and for the written orchestrator it is a written score. The interviewees have been asked what the advantages and disadvantages are with their final product.

For the electronic orchestrators, musical notation is very much associated with the classical theory rules. They are more concerned by telling their story through sound instead of complex melodies or harmonies. “It doesn’t really matter to me what the notes
really are, as long as the feeling is communicated. I’m more concerned whether the feeling of the piece is communicated well. When this is done, I think it’s better than a complex melody-piece which might have a good question and answer and some notes which might give doubt. I try to achieve this with sound. It doesn’t really bother me when this means my arrangement or melodies might be a bit simple, as long as the message is communicated properly”, states Deetman. A story can be told in numerous ways, but for him, “sound triggers me towards the next step.” The disadvantage of this is that it is hard to keep track of everything you’re doing when you add numerous layers in a DAW. According to Deetman, knowing musical notation could be something to overcome this.

Especially when a lot of layers are involved, and I have a lot of strings and horns and they are all going in weird harmonies with each other, then it could be that I lose track a little bit. I might have too many channels, so it might be unclear sometimes, so that’s more my untidiness in working. I think they are often harmonies; of which I think it might be good to get some more knowledge from the theoretical side.

As we have seen earlier, Delissen states that the focus on the sound of the composition can really make it stand out and the hyperorchestrator can make the orchestration stand out. “This is the fun part about designing your sound and to cherish your personal fascination for different elements.” According to Verbey, “you can take a lot more from music when you know the traditional notation.” Orchestration and composing could be tricky when you can’t read notes, because you need to have a very developed sense of hearing. “When you really know nothing of notation and can’t read notes, your ear has to be really developed. And you need to have a really good memory.”

Henderickx discusses in depth the relation between sound and notation in his own works. As we’ve seen earlier, he argues that you start to think differently when you imagine a sound before you write it down or try to recreate it in you DAW. He advises his students to train this by reading music and trying to hear it without actually hearing it. “This gives me a good image and helps me; it is my training for writing.” In order to be able to learn this you have to know musical notation. This will also enhance the composer’s ability to think of a sound that he wants to achieve in the concept phase of
the orchestration. When working on the piece, this sound can be achieved by imagination and experimentation. “Then I start experimenting in function of the sound I have. I rather call it searching. The experiment can be there in function of researching the sound itself. This could even happen during the rehearsal.”

6. Discussion

The following chapter will wrap up the discovered findings by comparing the results of the electronic and written orchestrators, in order to give a series of suggestions to the virtual orchestrator from both sides. He can use these conclusions in order to adapt his workflow and way of thinking and learn from both sides, in order to transcend his virtual orchestrations into hyperorchestrations. The findings of both sides are presented as one general suggestion for the hyperorchestrator, and will be linked to the hyperorchestration principles as found in chapter 3.4.

6.1 Advantages and disadvantages

As we have seen in the previous chapter, both electronic and written orchestration have their advantages and disadvantages the hyperorchestrator should take into account and use to his advantage.

One of the main advantages of electronic orchestration is the fact that sounds can be sculpted to the wish of the hyperorchestrator, without them losing their sense of realism. By adding other sounds or using plugins to alter the sounds already there, the hyperorchestrator can give the sound an extra bit of character, which the sound itself might lack. With this advantage, hyperorchestration principles I and III are met. In order to achieve this, the orchestrator can experiment in any way he wants, as long as the sound is perceived as real, and the amplification is only suggested. It is important to keep comparing the sound that is achieved to an actual sound which you’re trying to recreate, in order to stay within the area in which the sound is still perceived as real. You can hear everything you’re doing back immediately, so the experimenting can be done very quickly and with direct feedback.

It is important for the hyperorchestrator to realize what working with a human player might do to the piece. When the piece is just written with samples in the studio, it remains the responsibility of the orchestrator to know all the instruments. Working with an instrumental player, even by getting him in the studio to play some small things or to
have a listen to the piece, can take out possible mistakes and enhance the piece even further. An instrumental player, when recorded, always has a different instrumentation of the piece, which can be of great advantage when using recordings in a finished film. Different versions of the same piece can have a different impact in different stages of the film. All of this meets hyperorchestration principle V.

Finally, it is important to realize that written orchestration has certain rules or guidelines which are necessary to abide to when writing for orchestra. While it is important to know these in order to remain a sense of realism when writing for orchestra, the hyperorchestra can use the rules to break these in order to come to new, creative ideas. The same principle can be applied to the sound of samples in the hyperorchestration. A sound can be made unrealistic ‘on purpose’, in order to use it as a new synth sound in itself.

### Suggestions for the hyperorchestrator
- Sculpt sounds to the way you want it, but keep listening and comparing to remain a sense of realism. This can be done by an infinite amount of tricks and hacks.
- Learn from instrumental players and use their knowledge and differences in interpretation to enhance your piece and orchestration.
- Know the rules of orchestration, but break them for new, creative ideas.

#### 6.2 Workflow
Of course, each orchestrator has his own way of working that works for him. However, the hyperorchestrator can take great advantage from the different workflows of electronic and written orchestrators, in order to work in a way that takes full advantage of the two.

Both types of orchestrators work in a way where they start very small, make the structure of the piece first, after which the piece is written and orchestrated. By making the skeleton of the piece first, you will know what comes when and you don’t get stuck in the details too soon. The written orchestrators and Delissen go a step further in this. They put down all the ground rules for the orchestration before they start writing. This way, everything they use and write for, whether acoustic or electronic, has a purpose. This is an important notice for the hyperorchestrator to take into account. The
orchestration will have a coherence, and when it is a work for a film, the sound will be defined and refined before it is realized. This way, there is a guidance when orchestrating and ‘random’ additions to the orchestration are avoided.

Adapting this will also give the hyperorchestrator an improved imagination of the sound he wants to achieve. By imagining the sound before you try to achieve it, you will start to think differently and come to new, creative ideas. Since this is a very difficult thing, this should be trained, for example by reading music and hearing it without actually hearing it and making a concise short scores or overview of the piece which is finished before the orchestration is made. This will take some time, but will in the end give the hyperorchestrator a highly developed imagination of the sound he wants to achieve. All the above mentioned points meet hyperorchestration principles I through IV.

An important element to take from the workflow of electronic orchestrators is to know the sounds that you’re working with. Most sample libraries have their strengths, so in order to use these to your advantage you should know your sample libraries and use them to their strengths. This can even be done when developing the concept of a piece.

### Suggestions for the hyperorchestrator

- Work out the structure first and start small, so you don’t get stuck in the details in an early stage of the orchestration. Work out the ground rules before you start.
- Work on your imagination of the sound you want to achieve.
- Get to know your sample libraries and use them to their strengths.

### 6.3 Preliminary conclusions

The preliminary conclusions as found in chapter 3.3 provide an overview of what suggestions for the hyperorchestrator exist in literature. This chapter will give a more in-depth overview of how these elements can be achieved.

#### 6.3.1 The human element

Since the human element is the hardest to achieve element in a virtual orchestration, the hyperorchestrator should consider adding one live player to the mix in order to save time and have an improved sense of realism. One player, even when pressed in the mix,
adds his own expression to the music, which can have an enormous impact in the overall piece. This also prevents you of having to add the expression in the MIDI data. A player is specialized in this, so it is best if it is delegated to an expert.

Furthermore, inviting an instrumental player can give a great insight in the physical aspects of playing an instrument, which differ from instrument to instrument. When you use a solo player, and you have the time for this, write for this person and his strengths as well, in order to get the most out of the performance. Having someone of flesh and blood to play your music and experiencing your music in a way where it is happening right in front of you can truly surprise you and can inspire your creativity and could enhance the orchestration even further. These principles cohere with hyperorchestration principle V.

When adding a human player to the mix is not an option, the hyperorchestrator should be aware of all these elements a human player would add to the music, and try to achieve this by programming the music in his DAW. This can be done by adding little mistakes, having different versions of a line with different sample libraries and by keeping the physical aspect of each instrument into account. Listening to recordings of solo players or ensembles and working with a solo player are highly recommended in order to learn these elements in a thorough way.

Suggestions for the hyperorchestrator
- Try to add a recorded live player to your orchestration. Even when pressed in the mix, this has a huge impact on the realism of your music.
- When this is not an option, be aware of the aspects a live player or an ensemble would add to the music, and try to achieve this in your orchestration.

6.3.2 Restrictions
As each sample library has its strengths, it also has its weaknesses. It is important for the hyperorchestrator to know his libraries in order to be able to avoid the weaknesses as well, and not try to get something out of the libraries that are hard or impossible to achieve with that sample library. When the orchestrator wants something that can’t be done by the libraries he possesses, he should work around it or look for a library that can do it.

Another restriction is the restriction of the hardware. Computers might not be able to handle everything you want, so it might be that you should look into the density
of the sound you want to achieve, and whether it is possible for the hardware to achieve this. You might lose some details, but you will have a more smooth working process.

Restrictions that can be found in written orchestration can be used and seen as an opportunity in order to add a layer to the music which can only be achieved by letting go of the restrictions of written orchestration. Again, this should fall within the realms of the aural fidelity of the sound, but when it is done properly, it can enhance the overall sound of the composition in service of the goal that the orchestrator wants to achieve. This meets hyperorchestration principles I and IV.

An important notice to take from written orchestrators is to deal with restrictions. When the ground rules of the piece are laid out before the piece is written or orchestrated, it can be very tempting to add an instrument when the situation arises that you might need this extra instrument. However, it shows the master when the orchestrator works around this restriction, and stays within the realm of what he has conceived beforehand. This way, 'random' additions to the orchestration, which might sound out of place, can be avoided. This meets hyperorchestration principle II.

### Suggestions for the hyperorchestrator

- Know the weaknesses of your sample libraries and avoid these.
- Think of the sound density and what instruments are essential.
- Restrictions in written orchestration are an opportunity for the hyperorchestrator.
- Work around restrictions instead of adding instruments or elements at random.

#### 6.3.3 Notation vs. sound

The most important element for the hyperorchestrator to take from electronic orchestrators is their focus on sound in the composition process. Sound is what inspires and what triggers to the next step. Since the end result of a hyperorchestration is a sounding product, the overall sound is of the utmost importance. The feeling of a piece should be communicated, and this should be done by the sound of the piece in the end. Next to this, the focus on sound can really make the composition sound unique for the orchestrator, or for the film you are working on. This meets hyperorchestration principles I through IV.
However, musical notation can be a great tool to keep track of what you’re writing. It is not necessary to write everything down in an orchestral score, but it can be very useful to keep track of the structure of the piece and the different chords and melodies that are going on. Next to this, knowing notation can help to develop your sense of sound imagination, by reading music without listening to it.

As we see here, musical notation can be a great tool to use during the orchestration process, but in the end, you will not have to make a written score. The end result will still be the sounding product. It is important for the hyperorchestrator to realize that the notation should be used as a practical tool instead of a necessity before orchestrating.

**Suggestions for the hyperorchestrator**

- Focus on the overall sound of the orchestration as a start. This will make the sound unique for the orchestrator or the project.
- Notation is a very useful tool, but not a necessity for making the orchestration.
7. Conclusion

The aim of this research has been to give both electronic orchestrators and written orchestrators getting into film music the insight in the working practices and common knowledge of the other side, in order for them to use this knowledge in their advantage to enhance their virtual orchestrations into hyperorchestrations. Where the literature that has been available on this subject so far has given an insight in the knowledge that is needed for either side to make virtual orchestrations of a certain level, some gaps where still to fill by diving into the actual working practice of virtual orchestration. This research has given the aspiring hyperorchestrator some suggestions by which to increase the quality of their virtual orchestrations and thus fill the gaps that are found in the literature available on this subject.

In order to answer this question, this research has given an overview of the literature that is already available for electronic and written orchestrators for them to discover what there is to learn from the other side. Whereas there is quite some information available, this remains quite at a distance from the actual practice of virtual orchestration.

Four major elements where discovered where the literature lacks the information that is needed and where the aspiring hyperorchestrator could learn from either side. The human element, restrictions on electronic and written orchestration and notation vs. sound were further researched in the interviews with electronic and written orchestrators. The practice of virtual orchestration, the final preliminary conclusion, was described by the introduction of hyperorchestration (Casanelles 2016).
Through the years, virtual orchestration has developed to a form where the orchestrator makes use of all acoustic and electronic means available to him, in order to create hyperorchestrations. Hyperorchestrations are laid down in five basic principles, which are largely concerned with the shaping of the sound to the deepest detail, in order to achieve a sound which is just right for the project or film for which the hyperorchestrations are made.

The literature review provided the following model, of which step 2 was further researched in the interview part of the research.

The interviews conducted with several electronic and written orchestrators provided several suggestions to the hyperorchestrator to learn from either side, from both their advantages and disadvantages. Both electronic orchestrators and written orchestrators can take the suggestions which are provided from the other side, or even new insights from their own side, and incorporate these in their own working practice in order to start working towards hyperorchestration. This research is an addition to the literature that is already available, because it gives practical tips which come closer to the actual practice of virtual orchestration than the literature that is already available.

**7.1 Limitations and future research**

This research has been conducted with a limited amount of literature and interviewees. Where it has attempted to give an as broad insight as possible in the available literature and working practices of different types of orchestrators, it still remains a generalization from a limited amount of data. In order to give a broader view, more orchestrators could be interviewed and more literature could be analysed.
Furthermore, the research gives its suggestions to the hyperorchestrator in a very concise nature. The next step of this research would be to take these points and develop them in an educational context. A teaching method could be developed, starting from the findings in this research, by which starting virtual orchestrators could learn more about hyperorchestration and how to incorporate hyperorchestrational principles in their working practice and their final product.

7.2 Conclusion

In conclusion, this research suggests that electronic orchestrators and written orchestrators getting into virtual orchestration can learn from the other side by looking at their working practice, their advantages and disadvantages and how they deal with the human element in their music, how they deal with restrictions and how they incorporate either musical notation or an emphasis on sound in their final product. Hyperorchestration is the where the two worlds meet and are used in perfect harmony, in order to create a sound for a project which is sculpted to the deepest detail, while still maintaining its realism.
8. Appendices

Appendix A: Interview questions

N.B. These questions form a starting point of the conversation. When topics occur which require more attention, it is possible that I dive deeper in that topic. Questions for written orchestrators only are indicated with a 'W' after the question number. Questions for electronic orchestrators are indicated with an 'E'.

Introduction questions.

<table>
<thead>
<tr>
<th>No.</th>
<th>English</th>
<th>Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Please describe the professional activities you are currently undertaking.</td>
<td>Omschrijf de huidige werkzaamheden waar u zich mee bezig houdt.</td>
</tr>
<tr>
<td>2.</td>
<td>Do you have any experience in film music?</td>
<td>Heeft u enige ervaring in het schrijven van filmmuziek?</td>
</tr>
<tr>
<td>3.</td>
<td>If yes, would you describe this experience?</td>
<td>Zo ja, zou u deze ervaring willen omschrijven?</td>
</tr>
<tr>
<td>4.</td>
<td>What do you think of the fact that virtual orchestration has become common practice in film music?</td>
<td>Wat vindt u van het feit dat virtuele orkestratie een gewoontegoed is geworden in filmmuziek?</td>
</tr>
<tr>
<td>5.</td>
<td>What do you think has been its effect on the overall level of film music that is written today?</td>
<td>Wat heeft het, volgens u, gedaan met het niveau van filmmuziek?</td>
</tr>
</tbody>
</table>

Questions on workflow.

| 7.  | Which sources (books, scores, cd’s, etc.) help you in your creative process? | Welke bronnen (boeken, partituren, cd’s, etc.) helpen u in uw creatieve proces? |
| 8W. | What role does the computer take in the writing process? | Welke rol speelt de computer in het schrijfproces?                     |
| 8E. | What role does musical notation take in the writing process? | Welke rol speelt muzieknotatie in het schrijfproces?                    |
| 9.  | What problems do you stumble upon when writing an orchestration? | Tegen welke problemen loopt u aan wanneer u een orkestratie maakt?     |
### Questions on ‘the other side’.

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Question in Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>How do you solve these problems?</td>
<td>Hoe lost u deze problemen op?</td>
</tr>
<tr>
<td>11.</td>
<td>What elements do you use to shape or sculpt a sound to get it just as you want it?</td>
<td>Welke elementen gebruikt u om een klank te vormen of bij te schaven zodat het precies klinkt zoals u dat wilt?</td>
</tr>
</tbody>
</table>

**Questions on preliminary conclusions (chapter 3.3). These questions differ per orchestrator.**

- **The ‘human element’.** (Questions 15-17)
- **Restrictions on written and electronic orchestration.** (Q. 18-20)
- **Notation vs. sound.** (Q. 21-

**Written orchestrators.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Question in Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>12W.</td>
<td>Have you ever considered using or used electronic elements in your works? What made you decide to do so?</td>
<td>Heeft u ooit elektronische elementen in uw werk gebruikt? Wat heeft u doen besluiten om dit te doen?</td>
</tr>
<tr>
<td>12E.</td>
<td>Have you ever considered using or used live acoustic elements in your work? What made you decide to do so?</td>
<td>Heeft u ooit live akoestische elementen in uw werk gebruikt? Wat heeft u doen besluiten om dit te doen?</td>
</tr>
<tr>
<td>13W.</td>
<td>What do you think is the greatest advantage of live performed music over electronic music?</td>
<td>Wat is volgens u het grootste voordeel van live uitgevoerde muziek ten opzichte van elektronische muziek?</td>
</tr>
<tr>
<td>13E.</td>
<td>What do you think is the greatest advantage of electronic music over live performed music?</td>
<td>Wat is volgens u het grootste voordeel van elektronische muziek ten opzichte van live uitgevoerde muziek?</td>
</tr>
<tr>
<td>14W.</td>
<td>What do you think is the greatest disadvantage of live performed music over electronic music?</td>
<td>Wat is volgens u het grootste nadeel van live uitgevoerde muziek ten opzichte van elektronische muziek?</td>
</tr>
<tr>
<td>14E.</td>
<td>What do you think is the greatest disadvantage of electronic music over live performed music?</td>
<td>Wat is volgens u het grootste nadeel van elektronische muziek ten opzichte van live uitgevoerde muziek?</td>
</tr>
</tbody>
</table>

**Written orchestrators.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Question in Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.</td>
<td>Please describe the feeling of a first rehearsal of a new piece.</td>
<td>Zou u het gevoel kunnen omschrijven van een eerste repetitie van een nieuw werk?</td>
</tr>
<tr>
<td>16.</td>
<td>Do you work with performers occasionally on a new piece? If yes, what is the advantage of this?</td>
<td>Werkt u wel eens samen met een instrumentalist aan een nieuw werk? Zo ja, wat is hier het voordeel van?</td>
</tr>
<tr>
<td>17.</td>
<td>What do you feel do performers add to your music?</td>
<td>Hoe zou u omschrijven wat uitvoerders toevoegen aan het werk?</td>
</tr>
<tr>
<td>18.</td>
<td>Do you ever feel restricted when writing a new orchestration? What causes this?</td>
<td>Voelt u zich wel eens begrensd wanneer u een nieuwe orkestratie maakt? Hoe komt dit?</td>
</tr>
<tr>
<td>19.</td>
<td>What do you do to overcome or avoid these restrictions?</td>
<td>Wat doet u om deze beperkingen te omzeilen of te overwinnen?</td>
</tr>
<tr>
<td>20.</td>
<td>Do you feel electronic music is sometimes an answer to these restrictions?</td>
<td>Denkt u soms dat elektronische muziek een manier is om over deze beperkingen heen te komen?</td>
</tr>
<tr>
<td>21.</td>
<td>When orchestrating, is your starting point sound or notation?</td>
<td>Is klank of notatie uw startpunt wanneer u orkestreert?</td>
</tr>
<tr>
<td>22.</td>
<td>Do you ever feel burdened by the essence of music notation to get your works performed?</td>
<td>Voelt u zich ooit belast met het feit dat muzieknotatie nodig is om uw werk uitgevoerd te krijgen?</td>
</tr>
<tr>
<td>23.</td>
<td>What would you think is the advantage of knowing musical notation for a virtual orchestrator?</td>
<td>Wat is volgens u het voordeel van het kennen van muzieknotatie voor een virtuele orkestrator?</td>
</tr>
<tr>
<td>24.</td>
<td>What would you think is the advantage of starting from sound for a virtual orchestrator?</td>
<td>Wat is volgens u het voordeel van starten vanuit klank voor een virtuele orkestrator?</td>
</tr>
</tbody>
</table>

**Electronic orchestrators.**

| 15. | In your music, are you concerned with making the music sound as if it was live performed by a human being? | Maakt u zich in uw muziek druk of het de muziek klinkt alsof een live uitvoerder het heeft uitgevoerd? |
| 16. | Which elements do you use to make your music sound more human-like? | Welke elementen gebruikt u om uw muziek ‘menselijker’ te laten klinken? |
| 17. | What do you think would the addition of one live recorded player add to your music? | Wat denkt u dat het toevoegen van 1 live opgenomen instrumentalist zou doen met uw muziek? |
| 18. | Do you ever feel restricted when writing a new track? What causes this? | Voelt u zich wel eens begrensd wanneer u een nieuwe track maakt? Hoe komt dit? |
| 19. | What do you do to overcome or avoid these restrictions? | Wat doet u om deze beperkingen te omzeilen of te overwinnen? |
| 20. | Do you feel live music is sometimes an answer to these restrictions? | Denkt u soms dat live muziek een manier is om over deze beperkingen heen te komen? |
| 21. | When writing, is your starting point sound or notation? | Is klank of notatie uw startpunt wanneer u een track schrijft? |
| 22. | How do you approach music notation? Does it play a role in your writing? | Hoe benadert u muzieknotatie? Speelt het een rol in uw schrijfproces? |
| 23. | What would you think is the advantage of knowing musical notation for a virtual orchestrator? | Wat is volgens u het voordeel van het kennen van muzieknotatie voor een virtuele orkestrator? |
| 24. | What would you think is the advantage of starting from sound for a virtual orchestrator? | Wat is volgens u het voordeel van starten vanuit klank voor een virtuele orkestrator? |

*To wrap up.*
This research is on the effect written and electronic orchestration can have on virtual orchestration. Do you think I have missed anything that might be an addition to this research?

Dit onderzoek gaat over het effect van geschreven en elektronische orkestratie op virtuele orkestratie. Heb ik iets gemist wat nog een toevoeging zou kunnen zijn op dit onderzoek?

Appendix B: Interview transcriptions

Interview Paul Deetman, 31/10/2017

TS = Tom Schipper
PD = Paul Deetman

TS: I want to start off with a couple of introduction questions to get to know you a little better and to ease into proceedings. Could you start off by describing your current professional activities in music?

PD: I write a lot of electronic music. This is under (...), and it is a lot of club orientated, electronic with some light cinematic influences. Besides that, I do a lot of trailer and commercial work. Sometimes I do a little sound design, for example sound design for synthesisers that need sounds for different modules that need something awesome. So it ranges from composition to sound design to dance/pop productions.

TS: Do you have any experience in writing film music? So for feature film, and not film trailers.

PD: Not really, this is really in the early stages. Film music is something I’d love to do, but this is on hold for now. From my experience with trailer music comes that this is really fast, you need to catch the action as quickly as possible. In film music you have a lot more space for this. There is a difference between trailer music and film music. In film music you’re more connected to the images and you need to retract the feeling from this, instead of you having to sell something, whether it is fitting to the image or not, as long as it sells well.

TS: And at your gaming company? Do you do the music for these games?

PD: I used to write music for games, but this used to take so much time that I had to say I can’t do this anymore as an entrepreneur, so we hired a composer to do the music. A lot of other things came in here as well. Every player plays the game differently, so you have programmes like AvMod who are able to support that a little better, in the communication from programmer to composer as well.

TS: What do you think of the fact that virtual orchestration has become the standard in film music? Of course, we left the Bernard Hermann way of doing things a long time ago, but now every Dutch film actually needs a virtual orchestration.

PD: On the one hand I think it’s a good thing. I always tell people who don’t really like change, often older people who say it is difficult and it used to be better, to keep up with
the developments. I do think there is a lot to be gained when using a real orchestra. The only thing is the combination between a 40000 euro orchestra and a guy behind his computer who could emulate approximately the same result, budget-wise it would be the clever way to go. I do think that from the moment you are a bigger thing or your name is Hans Zimmer that you would say, let’s get these things involved again (live orchestra), because it keeps it alive. If we want to let an orchestra bleed to death, then we should really carry on with this software. I think software is more of a start for young composers to continue on, but in the end I hope it will be played again by real orchestras. It goes one layer deeper I would say.

TS: What do you think this has done to the level of film music? Do you think there has occurred a difference?

PD: If you’re really good in orchestrating with virtual instruments, the technology keeps getting better as well, you could fool a trained ear. This means that the differences are getting more and more minimal. You could say an orchestra has more to offer; when it’s done just on software it has deteriorated a bit, but you need some time before it would beat an orchestra. Should we want this? I don’t know. I think it is really beautiful when you don’t just have one person, or just robots, but you have humans and their feelings and all the expressions of the individuals who are making the music, instead of just having the software and you play it. There is more than one individual behind the expression of this feeling.

TS: We’ll get deeper into that subject later. We’ll move to some questions about your workflow now. In the first place, could you describe what your creative process looks like? In a general sense; starting from the first sketch until the finished product.

PD: Difficult question, but I’ll try. Where I start, I don’t really know. I always say that I’m tapping something somewhere from my subconscious and I hear things in it. I make something, so I always have a very small idea somewhere. Then I start, and I let every tone I make inspire me to keep writing. For example, when I am working on a trailer and I’m working on a drone-like sound or some synth or a couple of strings. I let the melody or the sound itself determine what my next steps will be. From the moment I got to something, I try to make a sort of skeleton of the entire piece as quickly as possible. This could be very ugly at times. I know where the intro should be, what I am building towards, here a line of white where the composition, the arrangement falls silent. Then I want it to have some sort of second layer, the double down of the intro for example, a break afterwards, some full bombast and everything gone all of a sudden. In the end I wrote this all down, which is probably really bad as some kind of skeleton. And I go over this by iteration constantly, saying the intro could be a bit better for example. The quicker you get at this, the better the pieces and the skeletons will be of the composition. Sometimes the skeleton has quite some flesh already, but that depends on how fast you work. When I am really fast, I’m working somewhat on a tight schedule, you have to be really careful that you don’t go in the details too quickly. You might lose yourself in 5% of the entire arrangement. This is why it is often very difficult or why you might get a writer’s block because you are stuck in the details. I don’t know if this makes sense..., So I try to write it down as quickly as possible.

With electronic music it is slightly different. I’m actually jamming a bit, so I’m trying a beat or a cool bass line or a nice synth or some melodies. When this doesn’t provide
something interesting within 20 minutes, so the core of the piece is not there, then I should let it go or throw it away. When I hear something in it I could give it a little longer, but when I am doodling for 2 hours with something that is not that interesting, then it is actually lost already. That piece of creativity passed on me. Then I already have new wishes and new ideas.

TS: This beginning, does this always start within your DAW?

PD: Yes. I use Ableton, this is not used by everybody, especially in film music where a lot of people use Cubase of Pro Tools. It doesn’t really matter what you’re using as long as you know what you’re using. Use it as a tool or extension of what you’re trying to tell in the story and in the music. That’s it. I use it all in this little piece. Sometimes I wake up at night and I have a good melody. I always think that I’ll remember it, but no, I never do. So I try to find the courage to get out of bed and write down very quickly what the idea was or I sing it in my telephone. This sounds incredibly awkward when I listen to it the next day, but at least I have it. Sometimes I don’t know what I meant then, so the interpretation of that moment is gone as well. Most of the times it really is on the moment. I start with the making of the piece, and it starts from that point. I always know something that triggers me. Sound triggers me towards the next step, whether it’s a small sample or a piece of music I hear, inspiration from another song, this could all lead to something, as long as I hear something, or even see something.

TS: So you never start at musical notation? Not even when you have a small melody in your sleep.

PD: Specific to me, no. Very lightly I’d say that it drips through. It’s almost a sort of improvisational whole. You’re improvising a lot.

TS: It’s more like you play it until you’ve remembered it and internalized it and afterwards you work it out, instead of writing it down in musical notation?

PD: Yes. It doesn’t really matter to me what the notes really are, as long as the feeling is communicated. I’m more concerned whether the feeling of the piece is communicated well. When this is done, I think it’s better than a complex melody-piece which might have a good question and answer and some notes which might give doubt. I try to achieve this with sound. It doesn’t really bother me when this means my arrangement or melodies might be a bit simple, as long as the message is communicated properly.

TS: I really hear an association with notation, and that it automatically should be really complex; you call it a complex melody-piece. Do you have this association with musical notation as a whole? Or do you think you could write out something simple when it works that way for you?

PD: No, musical notation in itself, I don’t really mean that. I mean that you really go deep and complex into melodies. Heavy melody and stating that that is the strength of a piece. That is not where the strength of a piece lies for me per se. It could be that there is a lot of strength in that. There are a lot of possibilities to tell a story. This could be done very minimalistic, or in a more complex or more melodious way. This always makes me think of John Williams who is more complex in terms of melody and harmony than for
example Hans Zimmer, but they both achieve how they want to tell their story in a different way.

TS: Williams is of course more writing for a set orchestra, while Zimmer fills this in to his own convenience, for example with 20 horns from the balcony.

PD: Exactly. It’s an interesting thought that there is a difference between this. Then there is of course the matter of taste; what do you prefer? I would be more in Hans Zimmer’s team. I don’t think John Williams is bad, he’s great, but my preference is for a deeper, more minimalistic way of explaining a feeling. If that makes sense.

TS: I understand. What do you think is the greatest advantage of knowing musical notation for a virtual orchestrator? What could be an advantage?

PD: I don’t really know, and I didn’t have any classical education; I don’t even play an instrument. But when you listen to the compositions I make, you think “that’s not possible”. You hear piano pieces, you think it resembles this and that.. I hear a lot of harmonies, but how do you make these? I don’t really know how that is possible. You don’t really play the instrument as an individual instrument, but more in a way that you play the entire unity-thing. Does this mean you know everything a little and all together it sounds somewhat good? No, I don’t really know how you explain it. It’s more a thing of hearing. It’s not necessarily in the rules, which I am actually happy with, but sometimes I’m not. Sometimes I think I want to know more rules, but by not knowing the rules I might makes mistakes which ask a different question in the music. That is quite interesting. I don’t know that when I would have known the rules if I would’ve done it in the same way. So, you hear who don’t know the classical rules who want to know the rules and the people who know the classical rules who find it hard to let these go. I would say, sometimes I miss it and I would like to know more rules, but on the other hand I’m quite happy with how it is now. I’ll figure it out, but not always.

TS: If you think back of a moment where you think “I would want to know the rules”, what rule would you want to know?

PD: It also has to do that I think I don’t really know a lot of rules, but am just doodling around, but when I am talking to people I realize I do know quite a lot. I think I might be too down to earth about it, that what I think are basic rules are actually more advanced than I realize. Perhaps, I don’t really know. What would I really want to know..? I don’t really know. I would like to learn how to play the piano really well. I do it in some kind, because I can do it again all the time. When you would be able to play the piano really well, I would be able to capture the feeling and the velocity of the notes I want to enter quicker, because I would do it in one go, instead of correcting it with the notes I have played just off the grid. It’s more an instrument I would’ve liked to play, but I don’t know whether this would help me or work against me, I don’t know. I think I would want it.

TS: And if you would think of... Sometimes you see virtual orchestrators who don’t really know a lot of a classical orchestra in itself, and would probably write a low flute very loudly, of which you know it is hardly playable. So if you would look more to the classical “instrumentation rules” and what an instrument can or can’t do.
PD: I think it is actually quite beautiful that rules are being broken all the time. I know an example of Hans Zimmer who wrote the music for “The Da Vinci Code”, which is all about mystery and things which are not possible and connections. He wrote some strings just below the note that is playable, just to offer the subconscious something that sounds a little strange, or sounds a little off. There is something different about the music, even though it sounds familiar. I think it’s nice when you try to tell an extra story about the other story. Just by listening to the music you might get some of the questions and the answers of the story, rather than just with the music combined with the image. No, I think it is quite interesting that you can experiment. It is just at the moment when it is put in front of the orchestra when you have to be creative with the solution to get what you want anyway. A flute which can’t go so low; there are possibilities where it could happen, or we should rewrite it so that it is normal and not so loud. If this really forms an important idea that would fit well and is the intention, then I wouldn’t mind.

TS: You could even say you would dub it in the recordings and put it more prominently in the mix.

PD: Something like that. It could be done. You could say it’s a mistake, but when it is the intention... I mean, when I would write it and I would go to a flute player and he would say: “Paul, this can’t be done”, then I would not want to look at the rules but more listen to how it sounds and if it still conveys what I wanted to tell with it. When I say yes, then the rules don’t really matter. I like to colour outside the lines a little bit.

TS: Thanks. I’ll go on now. Which sources do you use in your creative process? Do you have books you use, or CD’s?

PD: No, sometimes I stumble upon ideas. I’m reading something, some kind of research that might be about some philosophy or psychology behind certain keys and the certain associations people might have in western society. Middle eastern countries have different keys and why do we think that doesn’t sound good, because it sounds out of tune to our ears. This could be inspiring, that I lost it a bit. We’re of course westerners who have been thought the other tone scale; this is good and this is bad. I think it’s nice to play with this. Research and things I read might be interesting and can give me new ideas.

TS: Do you actively spend time for this? Like, I’m going to read now for an hour.

PD: No consciously no, more on the go. Furthermore, it could be that when I am watching films where I really watch the compositions that I am inspired. You could call this research by watching films. Or really old films where I think, yeah, funny how Philip Glass has tackled that. It is nice to have some mini research or look closer into where others might get there ideas, you notice that this happens with you as well. Sometimes less conscious than I dare to admit.

TS: More in a way that you discover something you already do, and that you discover what it actually is?

PD: I think it is very sporadic with me when I research. Sometimes they are documents or documentaries which put me in another direction that captured my attention. I get
deeper into this and do some research to it, and indeed, you are sometimes researching something, but very sporadically.

TS: All right.

PD: Am I talking too much? Or is it enough?

TS: No, this is certainly of help. Do you stumble upon problems when you make a virtual orchestration?

PD: Yes. Sometimes with an orchestration I’m doing I have certain harmonies which I am doing solely on gut feeling, that it sometimes not the way it was meant to be. It is very often the recipient as well. What are you making? When it is just for myself it might not matter that much, but when it is for a certain assignment which is looking for some specific harmony, then it could be that it might not be right what I am doing. Especially when a lot of layers are involved, and I have a lot of strings and horns and they are all going in weird harmonies with each other, then it could be that I lose track a little bit. I might have too many channels, so it might be unclear sometimes, so that’s more my untidiness in working. I think they are often harmonies; of which I think it might be good to get some more knowledge from the theoretical side. What do I mean exactly and why would this note not be good at this place? In my hearing I get what they mean, but sometimes not thorough enough. I get it for 60-65%; I think he means this, I’ll change it, but I can’t fully judge it. I think theory might be in some support of me, so I could point the notes that might be wrong. Classical theory could help me there. I will work it out in the end, but it might save about half an hour to an hour to figure out which note it was. Yes, I think that’s the answer.

TS: If you would look at the orchestration itself? For example, you want this line in the horns, but your horn samples are not good enough to play it. Do you look for ways to get it in the horns after all or will you look for a different solution?

PD: No, I am always thinking of what is not possible in the time, especially when I have very short deadlines. With free work it is easier. I don’t have the time for it. I really have to think of something else. It is usually a sound of which I think it should have some kind of effect which might not work with the samples. You should really know your libraries to find the effects. If this doesn’t work, I try it in a different way. I might pull out a synth; the sound might be different but the effect will be the same. Especially with trailers this might be possible. If they would still want the horn sound playing along, I gained some time so I can find the solution to that. In moments where I need to work quickly I build around it, in moments when I really have it stuck in my head and I have the time to do it, I’ll do some research. How does this work? How do I get it? What is the exact way of playing or way of blowing air through the instrument? Why don’t I get it by using the normal libraries? Then I am forced to go through the library more thorough until I find out it can or can’t do it. When it can’t do it, I have the choice to buy something new that can do it. When this might be too expensive or not efficient enough, I might build around it. There’s always a solution.

TS: Have you ever considered in one of those moments, if you would have time for it, to give a live musician a call? I can’t do it with my samples; let’s do it with a real player.
PD: Yes. For example, I do it with guitars. I find it really difficult to emulate those with software. I would call someone for that. But I don’t take too many guitar jobs. It could be that you don’t give yourself that problem. If they want a film score full of acoustic ukulele I might say no, or I say it’s a challenge and I take a ‘studio-cat’ and we make it together. Could be. I would do it. For the trailer or electronic stuff I never really did it. I have thought about it. Stem for example, vocals are near impossible. You might get somewhere with short sounds or a choir as a lower layer might work well, but really singing words and certain texts; I can’t emulate those.

TS: So you might get out of the way of these sounds in advance...

PD: I could get out of the way; it depends on the amount of space and time I have available. If I have nothing and I know this, then I won’t burn my fingers to it. I could do it, but I need a solution. I would say if I can do it within the possible 24 hours I might get, this might work, then I’ll stuff it in. I like taking risks, but if it’s not needed, then it’s not needed.

TS: What do you think is the greatest advantage of electronic music as opposed to live music?

PD: (Very fast). Speed. And money, budget.

TS: And in terms of sound? Final product?

PD: I think the orchestra always sounds way better. It sounds more real. You can give people a concept really quickly of what it might approximately be. It is just before, when you say we have some budget left for this film. This is what is written and we want to lift it to the next level, and we have this money available, then it would be really great to lift it to a real orchestra.

TS: If you would have this orchestral recording... We see this with Zimmer; he has his orchestral recordings and he layers these with a whole package of synths. Would you do this as well? To see how you can sculpt this or add to this in the studio? How would you deal with this?

PD: I would never use just orchestra, depending on the composition of course. I would beef it up quite a bit indeed. I think the combination... You should use one another. The orchestra has proven itself multiple times of what it has to offer. I think the electronic music can be a great new instrument within the full orchestra. Yes, I would definitely use this, but it is very dependent on what the purpose is and if it is necessary. When it is really unnecessary, I like it myself, but you might have enough already, then why should I add the synths? Just to add them in? No, it should have a purpose. Some drone sounds that sound strange through the texture or some light arpeggios that strengthen it and make it more digital could have something cool to it, but it really depends on what you want to achieve with the composition. Sometimes you have enough with just the orchestra. Virtually as well, I like to have electronics but also to add the orchestra, but this is because I love those 2 worlds. Film music and classical music and jazz is what I was raised with. I really like electronic music and techno as well, so I think the
combination is very fascinating. I always find a way to see why it should be done. *TS: To finish it?* Yes. In my experience, where others might say you’re finished already, I would say it would be nice to add something.

*TS: Do you also have this, for example, with a horn sound you might get from a sample library. Do you have the tendency, and this could apply to live recorded horns as well, to add some synth elements this, or add some audio processing to it? Not necessarily as an extra layer, but more as a way to sculpt the sound and get it exactly as you want it.*

PD: I am a little easier. Of course, I’m applying some EQ or filtering here and there, so in a light way I might be doing that. Sometimes I have a lot of horns and I might throw some roaring synth on top of it that sounds very ugly as a horn in itself, a sort of emulation of an FM-synth that tries to be a horn, which is never good. You don’t hear it, but it has some kind of raw edge that the horns in itself don’t have. This in combination with one another might give a smashing effect that sounds great.

*TS: And it still sounds realistic. It really blends the 2 things together.*

PD: You get the feeling it sounds more aggressive because you added the synth to it, but for most ears it is not really clear how this has happened. A trained ear might hear that a big synth has been added. In terms of filtering, EQ and effects processing on the instruments that I use; not too much in my experience. It might be thought. Sometimes I put guitar rigs of Native Instruments on top of strings to create some kind of horror effect, but this is more experimenting. You don’t have too much time for this when you have a lot of jobs.

*TS: You might look for each different project which sound you might want slightly different. I recognize this myself as well; very often I doubled the East West harp with marimba so you hear the harp more clearly for example.*

PD: Yes, it is about those kinds of hacks. That’s all included, it should be. I once did it with a sort of guitar effect which I had to emulate, and it had to be done with software. I noticed that a pizzicato effect playing above there made it sound better. Sometimes you’re cheating a bit, in order to get the effect you want.

*TS: I do this myself as well. Do we have to move already? Let’s do one more question and move afterwards, so we can move to a different subject then. Last question about the view from one side to another. What is for you the biggest disadvantage of electronic as opposed to live?*  

PD: Electronic from live? That’s difficult, because electronic could be done live as well of course.

*TS: I mean more in terms of an orchestra playing or a musician picking up his instrument.*

PD: Then really as a performance. It is more imposing to see a full orchestra play than to see something press something on a laptop. For the show it is better to see a full orchestra. You see people actually playing it than seeing the invisible robots play it in
the computer. You made it of course, but it plays from the computer. The live performance is very underwhelming with an electronic press of the play button.

TS: *I mean it more in the sense of the final product. What is the biggest disadvantage in virtual orchestration from electronic music as opposed to music that is live recorded for the final product??*

PD: Than I would say that it is still... We do get better, so we’re in an interesting place where you can still fool people with software; it almost doesn’t matter anymore. I think that there is now still a lot of difference between orchestra and software. When there is software it might sound more generic. When it is played by an orchestra, there are not necessarily mistakes, but the messy elements that make it sound more beautiful and give it more character. Nowadays I would say that, I don’t fully agree, but I would say that the orchestra has more character than software, but the software gets us very close to this character. But now it has somewhat of a generic effect. It reaches its goal, but it can have a little more character which the orchestra does have. But what I just said, we are really far and you can really far with software. I am somewhere in between.

TS: *All right. I will go on on this later. Shall we move now? (Stop recording 1)*

(Start recording 2, from 01:32).

TS: We were just talking about the character of an orchestra and the human element. In your music, do you worry about making it sound as if someone has actually performed it live?

PD: Yes, somehow. You make sure there is some expression in the strings, that you pay some attention to it. It kind of depends on what kind of project it is. It depends on budget as well. I always make sure I use some modulation on the expression, sometimes it’s a volume thing that gives some feeling. When it’s sounding really rigid and monotonous through the arrangement; somewhere it should be rounded off nicely. I pay attention to modulation, automation, expression, but to a certain extent. It depends whether the budget allows it and how much time you can spend on it.

TS: This is one of those things where you can spend hours and hours on to get it right, also in short tempo changes. Do you work with this as well?

PD: Tempo, not so much. I don’t really use this in my music. I am thinking of short pieces where you might have really fast tempo or signature changes. I worked on one a while ago where I was doing signature changes, but it was because the timing wasn’t completely right with the images, so I had to fix this somewhere. Sometime it is more of a solution than a creative idea. Tempo changes... Sometimes, yes. Not extremely, it depends. When you’re looking in the Pixar corner, where you have the feet of the rat that is running, and where you’re really working with the tempo of the sync with the images.

TS: In that case, it is more about the syncing with the images than for example having a violin line which takes just a bit more time to continue at the end of a sentence or plays just a bit quicker when the music builds.
PD: More in an expressive way. Yes, you have the answer of a solo violin which might have to wait a bit longer. Sometimes I think about adding this. But this is a small ending. We wait a bit before we get the real resolution. I work with it, until it is allowed in budgets and time. Time is the biggest setback. They can give me a week or a day, and then you’ll get what I can do in a week’s or a day’s time. Or I do both in a day; the one on the last day and the other on the day itself.

TS: What do you think adding one live instrumental player would do to your music? Imagine you have a background of virtual orchestration, but you have one solo violin line of which you think you need a live player.

PD: I would push it to the foreground if that is what I want to tell with the music. I would layer it. It would add some edges. It would save some work. In the automation of the software I would go with the expression. It makes life a bit easier. If I press it more in the mix I make it do the work, and the others are more back-up to make it a bit fatter. It could save some time. This is when I think when working under time pressure. When I think of a artistic composition in itself I would say no. You could build around it.

TS: Then it would be the core of the composition, in terms of adding a human touch. This is what you hear most dominantly, and afterwards we build the rest around it.

PD: Yes, and I would only do this if this is the goal, to bring that forward. It should be aimed at a goal, but it could be inspired or could be a creative expression of both that could join together nicely. I think it could be a goal; this is what I want with the music, so I put it in the foreground. Or it could be a creative process. We once did it with electronic music and double bass, because we knew someone who liked to do that. Then it is a matter of trying and experimenting together what you can do with it, some sort of jamming.

TS: In that case it is more about getting all the possibilities out of the double bass, that you might not have in sample libraries.

PD: No, exactly. I always have the feeling I have to record as much as possible which I might be able to use later, possibly in electronic dance songs, to use pieces from the recording which sound cool.

TS: When you have an hour in the studio you would fill it completely, also with different effects etc.

PD: Yes. It can also exist from some sort of creative thing with friends. Everyone is jamming, and everyone has a different form of getting it done. Sometimes it comes from that instead of doing it very efficiently and targeted. I think there are way too many answers to that.

TS: Yes, exactly, but for now, it is about your answer of course.

PD: Yes, but I might answer too much. Maybe there is some line somewhere.

TS: Do you ever feel restricted in your possibilities? In software or from your samples.
PD: Yes. When I don’t have the desired software and I don’t get the desired result, it might be that you don’t have the inspiration or you don’t have the right libraries who can handle that or have the right expressions or articulations. This should happen in your creativity that you want to achieve and you even know what it is. I don’t know all expressions and intonations. Sometimes I hear an expression which I like, but why can’t I get it done? There it could be that you don’t know the terms. I know that it is from that instrument, but what is it exactly? Sometimes it is a very logical step; they are these 3 instruments together, but you just didn’t know. Sometimes it is restricted, yes.

**TS:** How do you deal with these restrictions? Do you find a different solution? Could getting a musician in the studio be a solution to this?

PD: Yes, that is a solution. I always think in solutions very quickly. This could be that I have to hire and record someone. Or you decide not to do it at all. That is a matter of time and budget; do these allow it? When it doesn’t, get rid of your dream very quickly and see if you can find something else. When you keep staring down on it and have the time for it, you can of course get the best result you want. So I think it is very much a time constraint idea. When you don’t have this you have to do what you can or what your budget allows you.

**TS:** What do you think is the biggest advantage to start from sound for someone who works on virtual orchestrations.

PD: Again, what is the advantage...?

**TS:** Yes, you were telling me about how you got inspired by a sound which was inspiring the next sound. What I sometimes see with my colleagues in my class is that they start with a written piece for 5-part strings, which they will then virtually orchestrate. What do you think is the advantage of turning this around? I put down a chord for strings and we’ll see how it is divided.

PD: What is the advantage of this...? I think I am a bit impatient now and then; I like to get results very quick. I am very happy I am living in a time where I don’t have to write down a note from the piano and I hear whether it sounds right afterwards when I hear it from the orchestra. I’m very happy when I write something that I get immediate feedback of what I am writing. What kind of harmony, what kind of melody, do they fit together? But also the sounds altogether. I really like the feedback, and think this is a huge advantage, that I don’t have to wait for an export. I have instant feedback, and I think that is a great advantage.

**TS:** That was it. I have one more question. I told you earlier that this research is about the effect of electronic music on virtual orchestration and the effect of classical music on virtual orchestration. Have I missed something in this interview or do you think there might be something more to add that could be valuable for my research?

PD: Not necessarily. I would say that it is very often a choice as well. It is a choice whether people want it or not. Thinking easy. It is about how far the passion goes. For me it would be great to work with an orchestra, but the budgets and time won’t allow me, especially with all my companies altogether. For now it is too ambitious to have this
as well. That just won't work for now. It is a choice of wanting to do it. What have you missed? I think it is all reachable what you want, also when you wish to make electronic music along with orchestral music, but the wish might take longer than you would have hoped. Maybe this is more of a life thing.

TS: Okay. I want to thank you very much for your time.

Interview Bart Delissen, 01/02/2018

TS = Tom Schipper
BD = Bart Delissen

TS: Could you start off with describing your current professional activities?

BD: I’m mainly a composer for the media, and for the large part, about the last 7-8 years, for games. The professional field in the Netherlands is so compact that in reality, you’ll also have to do some side activities. When you really want to focus on games, you’ll often get asked if you also do sound design. I’ve done this for smaller projects for years, but when it gets a bit bigger, I think there are specialists to do this. I’m a better composer than that sound designer, so let’s celebrate our specialities and look for each other in this matter. What I do find interesting is the fact that, mostly because of the digital side of things, I discovered a talent in coaching, casting and directing voice actors. For me, this is the same as leading an instrument or orchestra; conducting or in the studio setting. I have an opinion on how expression, intonation and timing relate to each other, and this is not really different with a voice actor than with a string quartet, orchestra or band in the studio. That’s what I like to do as well, and is something I’ve been doing for the last 2-3 years. So that’s composition and production. Besides this, when there is more budget or other composers that don’t have the time but do have the budget, I’m an orchestrator. Make it right and playable for an ensemble, soloist or orchestra, deliver the sheet music and be in the studio in order to give tips or directions. So that’s my freelance work. Besides this, I’m a teacher at the HKU in composition and several production subjects, such as virtual orchestration. Besides the technical side, I’m still in the acoustic and classical experience, and I use the technological means for this, and not to find the most innovative things in this.

TS: So you’re looking for the electronic realization of this?

BD: Yes, that is more the case. Finding technological means for budget and economical problems for what is asked. It would be way too expensive to realize with an orchestra, and they don’t want to spend this, so you have to find a way to do it. This might be to work with befriended musicians who are not that experienced. In this case, you have to use edits of certain takes, to make them sound as if they are more virtuoso than they actually are. Or you could book a very tight session with very good musicians; they other way around. You’d have to repair in this case as well when your music is somewhat challenging. This is just a grasp from the challenges that could arise.

TS: What do you think of the fact that virtual orchestration has taken a bigger role in media music?
BD: On one hand you could say *stop canned music*; the real deal is much better, it should be prohibited. This hype has calmed down a bit; this was more a problem from the mid-90’s until about 2004-2005. Then the orchestras noticed that they would be hired for the bigger projects, because everyone knows that this is more expressive and enhances the production value. On the other hand it enhances the spectrum and the possibilities, because you can also approach a sound in a non-human way, and you could break through possibilities. Everything that is desirable in orchestration to make it playable, you could ignore this in virtual orchestration; to make some augmented reality in sound. In that case you can make a violist a super-Paganini or a heavy metal guitarist. Or you can have a musician who doesn’t have to breathe. When you would look at this as a variety of the synthesiser and make a different texture for this, then this is not bad perse. You could say you might get a little scared when it should be played.

*TS:* Aren’t you afraid, when a clarinet would play an endless string of notes, it would lose its realism?

BD: Realisme in what sense?

*TS:* Credibility. Do I believe that what I hear is real?

BD: When you would program it really tight on the grid as well, so tight that no human could ever play it, and just appreciate it for the sound it is, then you approach it as a digital instrument or a synthesiser. You shouldn’t write super realistic music around it; you should add synths and drums in that case in order to create a more abstract sound. It is the craft to keep doing this.

*TS:* So the context in which it takes place should be in line with the instrument?

BD: Yes. When you would write symphonic and not too tight, more in a rubato way, then I would say just use 2 clarinets who alternate in staggered breathing, and maybe work with the placement a bit. I do these things more often, because I often think by default that I should be able to transcribe it for a performance when I should be asked. I often have the mix between abstract sound design or altered acoustic input; so the source material is acoustic, but it has been played with, in combination with played or playable parts over this. That is more my approach.

*TS:* If you alternate these sounds, to what purpose do you do this?

BD: It is often stretching of sound. I sometimes have double bass harmonics, which have a fat, but hoarse sound, I would add plugins that calculate the overtones, hold these and add a delay over them. Then you get a stretched sound of the already extended technique. You’ve made a synth sound on an acoustic basis. The source material hasn’t been torrented. You made something unreal. I sometimes compare it when you just get out of the pool and look into the lamp, you don’t just see the light, but also the prism effect around it. This is derived from everything that is there already. This might give a stretch to the sound of the entire composition. You might turn down the original signal, and then you only have the derived sound, with which you can play endlessly; in every expression of any effect that you’d want to achieve.
TS: The goal isn’t to keep the sound and boost it, but it is to create a new sound from it?

BD: I have both goals, and they are dependant on the project. It could be that you want this hoarse sound, and you want to enhance something here. You could also say you don’t need the tonal information, and you try to boost it in such a way that you only get the hoarse sound of the playing in itself, which is very high compared to the tonal information, and you cut away everything below 18 kHz, so you only get the high tone, or noise. You can make it as crazy as you want, but I find it inspiring that I’m still working with a musician or a source from a musician. For me, that’s the perfect balance between the acoustic world and the digital altering of this.

TS: Do you worry if your music sounds as if it would be performed by a live performer? Or is this project-based as well?

BD: I don’t bash it when it’s not the case and it fits the project. When it is a Japanese game it could be flat and it is written idiomatic and symphonic. When you’d do this in Europe, you’d get asked to compare it to the real deal, and are asked to produce towards this. When it is meant in a symphonic way I’d tend to this realism, but this is not always the highest that can be achieved. This really depends on the project.

TS: If you would work towards this, what are the elements that you’d use in your music to work towards this symphonic balance?

BD: Then I’m really busy with what the weight is of a group of brass players opposed to a group of strings. How big is this group of strings? How big is my sample? Do I have a sample of 8 1st violins or of 12 1st violins. This is a huge difference in mass, not necessarily in volume, but in the amount of detail you’d hear in the background. When you’d write a pretty complex bed with woodwinds, it is more important what exactly you write when you have 8 violins then when you have 18 violins. You’d could write a lot of stuff through each other, even aleatoric, and then it doesn’t really matter because it will be filled anyway. We get to Richard Strauss here, who had so many strings that he wrote a lot of little runs in between, and if this is played exact to the 16th note, that didn’t matter to him. He admitted this. The goal was that there was activity. You could play with this. How control-freakish you’re with this... Samples are often hyper sterile. When it doesn’t really fit, it is often even a bit better. These are the things I occupy myself with. How does this tutti chord sound? Is it normal for an orchestra when I’d have for example an ostinato in strings and winds. Which instrument tends to enter the earliest? Which one is done the latest? Is there a difference in this? Then you can time a bit more realistic. It remains a stacking of sound, and that is not how it works when you have 60-100 people who all have to listen to each other and experience some stress on how to time, what cues the conductor might give, what the soloist might do. This gives a certain tension and expression that can be heard at all times. Even when a musician plays for just a couple of years and doesn’t know to play that well, there will always be more in there than in a sample that plays very tight for each note. I think that when you approach this as some kind of conductor, to study how these instrument behave in relationship to one another, that you get more towards something that is realistic than you save up for the most expensive samples, that might sound nice. When you don’t know how they should be placed among each other or how they should react, than it would still be a very tight and dull production.
TS: Do you have some examples how you treat these elements within your software?

BD: I have some tracks which I load for the different instruments, when I play the timpani a bit earlier than the starting tone of the low strings, it will, like in a real orchestra, drive it all forward. When I want to have an ending I make sure it isn’t early, but as in a real rubato, might be a bit late even. So it really closes a phrase, because it slows a bit as well. You have to play line after line. I play everything monophonic, unless I quickly want to add a chord in 3 trumpets for example. When you’ve played something in a certain way or gesture, you’ll follow yourself in this. Sometimes this might fail, sometimes you might think that you think there’s a certain timing, and the cymbals you play might be a bit too early. This happens in the real orchestra as well, and it is the art to think if it is good or if it’s too wrong. I can find peace in imperfection pretty well in such a case. I think that’s a factor that, when it should be really symphonic, might be used more in virtual orchestration.

TS: So you’re the orchestral player who might be early yourself?

BD: Yes, and then I’m the conductor. I’m not a piano player, I’m an oboe player. I have my opinions on phrasing and the way a melody comes to being, but I’m just skillful enough on a piano, after a couple of piano lessons on a later age, so I can play some chords and very functionally, but at the same time, I’m clumsy enough to play these handy accidents that could work for virtual orchestration.

TS: You just told briefly about a smaller group in the studio and have some good players for a short session. Could you elaborate on this a bit; to record one or more instrumental players to use in your virtual orchestrations?

BD: For a small budget project I did once, it was a ballet-app with which you could dance a choreography on my music. The limit was that it should come from a phone speaker. If you’d write like Ravel in terms of sound you already lose one third on the lower end you could say. The muted trumpet would also not be advised. When you put everything on the foreground, it might not sound good on your speakers in the mix, but on your phone you’d hear quite some detail. Because this doesn’t ask a lot in terms of budget, I recorded a violin player with a ZOOM recorder, who played some solo parts at my home. Then you already have some natural distance. It was just recorded in a relatively dry office space, and you could still edit it, but you do have the distance of 6 meters. You don’t want to hear every crack or every little detail when it should be the first violin in an orchestra setting. You put this in the reverb that you have on your entire virtual orchestration, and with a bit of mixing and producing you have your first chair violin. These are things that could be done for less then a couple of 100 euros. When you have a befriended violin player who could do it for a lower price. When you’d hire a big professional for this who teaches and plays in an orchestra, although it is different now because of all the budget cuts, it would be the case that you’d give someone like that 250 euros. When you can save every 50 euros on such a small budget, then you go to the enthusiast person earlier. When there is a mistake you might cut it away with software. When it is a beautiful take but on a higher note the sharp or flat is not read, you can edit this note in your software. With the current algorithms it is almost inaudible that this isn’t the original tone. When it is more than a semitone than you’d hear it already. There
are a lot of tricks with which you can repair such recordings. This is worth the effort. It is just about the product, and not about artistic value. When you have to turn yourself upside-down to make something into a good product, than you have to do this. The fact that a violin player should have played it correctly at first sight doesn’t matter in that case, because that’s not what it is about.

**TS: Could you describe your creative process from first sketch to finished product?**

**BD:** I really think a lot in general before I start to make something. In trailer music or quick commercial music you’ll have to make a copy of a style that is already there and is in fashion. When you analyse this on a motif basis, you could fall asleep on your piano and from your subconscious you create the majority of it, and the rest you fill with sound effects etc. This is of course very blunt; this is a speciality in itself as well, but the difference is that I often look at a product in a more autonomous way. What does the product need? What does the client want to communicate with the product? Can we create a concept from this? From this I do my research on what sound or production value the product needs. When they’d want something, for example, tsaristic Russian, you’d get to Mussorgsky and Rimsky-Korsakov very quickly. How would you produce this? Would you produce it as a Hollywood-blockbuster, somewhat larger than life? Or do you go more to the more transparent sound? The way in which something is recorded is worth to dive into. Most of the times this leads to small demos of about 30 seconds, which you can send to a client, and when he is slightly positive you might convince him with a full track. Besides studying sheet music, you’re studying which things were in fashion in a certain style, or are in fashion now in a certain style. If you’d have to write a Latin American piece, how would you time the rhythms? The Dutch orchestras couldn’t do this compared to the Brazilian ones, but we have the luxury to have your samples being able to do it when you get it in your sequencer. I think it’s important to spend time on this, and take the role of the conductor in this process, by also studying beforehand. Then I’m working on the final sound pretty quickly already. Often when I have a track, it is produced really well, because this goes in a more linear way with me. I often wait with the first demos until I’ve thought about it enough for myself. I tend to write ‘easier’ melodies, which is also due to my melodic background as a melodic player, but you shouldn’t get away with that too easy when it’s a product that encompasses a longer period of time. When you’d have to do this over the course of a year with some regularity, you’d have to like these kinds of melodies in a year from now in order to do this. When you have a concept of what you wanted to do and how you wanted to produce it, and the project is postponed for 9 months, and you’d have to write some more music after that, it’s easier to fall back on your sound, because you know what you’d told yourself to do. These are often such intense musical decisions, that you shouldn’t bother your client with this. You should just say where the inspiration comes from and how you dealt with this in an easy way. How you’d fill it in for yourself is something for yourself. That’s my process in short, when I start with the first melodic phrases or harmonic ideas or textures, I try very soon to get the sound and production style right. It is often very inherent to the idea I have and what I want to achieve. I’m not a composer who writes an outline of the piece from start to finish, but I do know what the sound should be of the piece. I work from the inside out; a first small sketch that works to the outside. A more French-Russian than a German approach, where you’d get the main theme directly. I’ve done this, but I often find it fascinating where you get when you decide to start with a certain motif. Using the material and developing it in a lot of
different ways, that’s what I find interesting and how this can create an extra texture. This makes the bridge to the electronic domain, which is just one step away from the way I think about music acoustically. I do write quite accessible with melodies and everything, but I try to make the background textures fun for myself.

TS: When you’d get a musician in the studio, do you think of this in the concept phase?

BD: It is very often early, that I intend to do this. It could happen earlier than when I’m halfway along the piece that I don’t find it an addition for that project, but it is very often early in my head. For a soundtrack I’m doing now I have about 22 minutes, quite abstract and organic sounds with sometimes some guitar textures, in order to add a concrete instrument that can come out of it. This guitar has some levels of tangibility; sometimes you just recognize the way of playing, sometimes it is processed so much that it has become a completely different sound, and sometimes you hear some typical guitar parts that are put very much on the background. When I decided I wanted to make a guitar soundtrack, I decided that I wanted to see in terms of textures if I could add some multiphonics with my oboe. That idea is there and is on the planning for next week if we can add this sound. When I’ve looked into this, the sound is complete. I have about 4-5 tracks now which are finished and consistent with one another, and this could be the only sound that would really make it mine, because I play this instrument. Any other composer would have another idea that is closer to him or her. This is the fun part about designing your sound and to cherish your personal fascination for different elements.

TS: Which role does musical notation play in your writing process?

BD: That depends on where I am. When I’m here it’s not necessary, when the end product should be virtual. When I’m in the train however, I do need the voice recorder or pencil and paper. This could be in graphic notation or to write down motivic things that work against each other. Especially when I have a voice recorder, I could have a good idea and the melody. When you just record the melody, you don’t record the idea that you had with it. When you listen to it later, you think there was more to that melody. Sometimes you want 2 voices at the same time against each other. Often it’s rhythmical as well. Then you don’t have the stress of having to write it down exactly when you only have about 2 minutes in the train with all the background noise. Sometimes I notice that it doesn’t stress me at all when I write something down wrong. You still have more of the idea than when you’d just have recorded it in your voice recorder. You’ll figure out numerous variations when you’re back home. In the process; when I have a musician I make sure there is a good part. The more indications, the more professional, the faster it will be recorded when every minute counts.

TS: When you write a new piece in your studio, it would really originate from your keyboard...

BD: When it should only be produced virtually, it will. When I have to write for an ensemble than I write with notation and preferably as ugly MIDI sounds as possible. You don’t reach the possibilities an instrumental player can do with samples, so I don’t want to be limited by this. Try to make a glissando that goes into a trill that goes into a harmonic; you’d need already a day or so for just this. You can better add this in 2 bars in Sibelius or Finale.
TS: In these cases, when you have limitations with your samples, how do you overcome these in your virtual orchestrations?

BD: A good tactic is to see if you want the sound or the activity. When you don’t want the strings to lay flat and say a trill would be good. If you don’t have them, get a tremolo. It has some resemblance. When you’re not too critical and want some activity to take place, you could do that. That’s a common practice. If you do want this, but you only have trills in the winds, you could see if you could use that. You can’t make something you don’t have. If you have the complete Vienna Symphonic Library package, they have of each instrument about all the articulations, then you could make this. What you could do, depending on the budget, is to buy an articulation from Vienna for about 50-100 euros. This is logistically more easy than to hire someone, who’d also be more expensive. To a client I would try to emphasize the urgency to make it a solo line that should be recorded. In this way you do yourself and a musician a great favour. You’ll learn a lot more from this than discovering that what you want to make is not made for that sample package. You don’t learn a lot from this. You just see that it can’t be done with this. If you’d have to write it for a soloist or an orchestra you’d have to know how to notate the effect. That’s a learning experience already. You work with a musician and it is new music, so you make some strides in your progress. Doesn’t matter what age you are; this is always a moment to learn.

TS: What do you think is the greatest advantage for a virtual orchestrator to know musical notation?

BD: Active or passive? Reading? The big advantage is IMSLP (sheet music library). You can just look for music from a context. OR when you need something that isn’t open source you can buy it for a few euros. You can see how the man wrote something, and it doesn’t have to be that you know all the chords or counterpoint or what colour he is making, but you can see how he puts the blocks against each other. The strings against the winds and the brass for example. I know people who think that the density of the notes has to do with the intensity of the music. If you look at the opening of Daphnis and Chloe, it is full of notes but you hardly hear anything. When you look at a climax of Puccini, you only see a couple of whole notes, but completely spread out with forte-fortissimo, where you’d say you hear nothing. This is a mistake very common for someone who can’t read notes. You’ll learn more difficult as a virtual orchestrator. If you teach yourself for learning it... It might take a while, but there is no shortcut to learning. You don’t just have to be working with notes before you learn and listen. Make sure you can learn notes and read along with recordings, and you have a crash course with valuing something or see how things work. When you’d invest in notating yourself, this can only mean it enhances your imagination for that which you’ll create virtually. So you’ll get more varied compositional ideas. All these kinds of input in your brain is just better than when you try to get everything in through one side. It’s like a river that has to stream away through one side. When you have different locks, it will stream much faster.

TS: What problems do you stumble upon when making a virtual orchestration, and how do you solve these?
BD: Often it’s the limits of your hardware. When I’m working in a creative flow, at one of the highpoints of a composition without distractions, I can be running different processes at the same time in my head. In order to load this in my samplers as different instruments or divisi, this can be really hard on your computer. Sometimes you’ll have to cut on something. You have to see what you really need or what is there just in case you really need it but is not essential. I don’t make templates often, so I use older projects from which I throw everything out and save under a different name, which is my palette from which I start to work. When I’ve just worked on a fantasy piece, and it should be powerful with a Hollywood sound, a celesta is of no use to me. So I could take it out. Or when it should be really forcing, you don’t hear if you play wrong with 3 or 4 flutes, or if you have loaded a piccolo. Or an English horn instead of playing multiple voices with the bassoon. This richness of sound is not needed then, so it is important that you meet your computer. So you have to look what you want if you don’t have to take anything into account, as opposed to what you really need that you’re not limited by your computer. This happens with some regularity in bigger projects.

TS: What do you think is the largest advantage of electronic music as opposed to acoustic music?

BD: I think the possibilities to do it in a couple of hours. If you get a call for a commercial and you get the call at 8.30 in the evening, and it should be finished by 8:30 in the morning, and you want 6-8 hours of sleep, then you have 5-6 hours to work, of which you’ll be the brightest in the first 3. You need to put the thinking as much forward as possible. These are things that you can do nowadays. Back in the days you couldn’t do this. If you’re lucky, your favorite violin player lives around the corner, and she’d be willing to play a top line for a couple of hundred euros at 12 at night. But you have the orchestra that is never tired, so you can work when you want and take the deadlines that you can deal with physically. That’s the biggest advantage logistically. And broading of genres. You can make anything that comes from your mind. I’d like to know what drs. P. would’ve done with virtual orchestration if he would’ve had it.

TS: And what do you think is the biggest disadvantage?

BD: The fact that you’re working with an apparatus that can’t do interpretation. You need to tell something that doesn’t show any initiative at all what he should do. You’re a mother that is teaching. A bit louder, no that’s too loud, etc. Which you have to do for each note, which is very labor-intensive when you have to do it for each and every note. In its basics, it stands really quickly, but when it has to be a lot more than that, it’d save time to write it for orchestra directly. But not every client has this kind of trust in you. I’ve had this once, a client who approved something on the basis of the piano sketch or a form sketch of the whole, which I’d orchestrate then virtually. This is the minority, because people are used to virtual demos now. These are the 2 situations that are directly opposed to each other. It is logistically very practical, but artistically and in richness of sound you can do less with it. You can’t do anything. Try to make a big band with samples. There are some recorded, but you’ll never get the parameters that are in the expression of a high blowing trumpet.
TS: As a wrap-up, this research is about how electronic and written orchestration influence each other on virtual orchestration. Did we miss anything in this interview that could be of value for my research?

BD: I think I shared my vision quite well... The good thing is that people have lack to advice and find a great implication of how they write in their genres. The cultural options and what an audience expects and what you do is can be multiplied with one another, so that the notion that we have 12 tones and write new music every day is completely outdated. There are so much parameters to manipulate culture, music and perception from these kinds of cases, that I find it very beautiful that there are a lot of different things available through the different media. The moment that you think what you want to make, you can really put yourself in a way that is different from what you’ve heard until now. You can really take advantage of this. That’s the most beautiful form in which virtual orchestration can manifest itself, through the broadness and the differences that are possible that can be shown and that inspire us to make new things altogether. Or make the most cliché things even richer or more expressive.

TS: Thank you very much.

Interview Wim Henderickx, 24/11/2017

TS = Tom Schipper
WH = Wim Henderickx

TS: Would you please describe the activities you are currently undertaking?

WH: As a composer I’m bury with all kinds of composing, not just for the orchestra. The orchestra does have a very important place with my concertos and large orchestral pieces, but I also write musical theatre and chamber pieces. The orchestra has been one of the essential things throughout the years. At the moment I’m writing a cello concerto, a piece with harp, not really a concerto, and I’m planning my third symphony. So I’m writing a lot of orchestral music, but I’m also planning a new big opera as well. I’m really into the orchestra. I’ve worked a lot with orchestra in the past. I came from the orchestra as a performer as well. Before I started teaching in different conservatories I was a timpanist in the orchestra. I’ve had an education as orchestral musician, which is really important as well. I also really believe in the orchestra. This was one of the reasons why I’ve been composer in residence for 4 years at the Antwerp Symphony orchestra. The question was: “What does an orchestra mean nowadays?” How do we deal with this in the 21st century? As a teacher, I’m really into this as well. I think it is an apparatus which really has a big future, and not just for me.

TS: Do you have any experience in film music?

WH: I have very little experience in film music, which has been a choice. You’re never too old to start though. A long time back I made some tracks which were occasional tracks. Through my students I have some experience with film music. In Antwerp, my students also get taught by one of my assistants who is well known in the Belgian TV-world. He is sonorisor at the Flemish radio and TV, and he writes a lot of TV-tunes for well-known series in Flanders. He teaches in Antwerp, so my students also learn that
kind of orchestration, to use virtual modules. In a pedagogical sense I encounter it more then in my artistic life. I’m writing so much from classical contemporary music... I coincidentally talked to someone of the Belgian film fund yesterday who said: “Wim, you should do this, your music is so filmic.” Life comes at you and sometimes you follow choices, and now you’re here, I think “Maybe I should do some...”. It’s been a long time ago since I’ve done it, about 20-25 years ago.

TS: You told they’re working with virtual orchestration in the composition class in Antwerp. What do you think of the fact that virtual orchestration has become common practice in film music?

WH: It’s just really easy to use, it’s a very delicate and dangerous subject of course... It is cheaper and it already has a lot of possibilities. It works better than about 10 years ago, so a lot of research has been done and know-how developed. So with the Wiener Philharmonic samples you come fairly close... But it is a dangerous subject of course. You can get very close to the orchestra of course. I don’t want to express myself whether it’s better or less good than the orchestra. It’s different, but it is of good use of course. Even when you have slightly less sound libraries, you still have a quite good package at your fingertips when you have no orchestra available. Why wouldn’t you use this in film music? In the old days it was clear; everything was done with orchestra. Every major studio had an orchestra. Unfortunately, this is not the case anymore, especially for our musician colleagues. Virtual orchestration hasn’t completely taken over, but it has become a major part of what’s happening at the moment with orchestration in film music.

TS: Do you think it has had an effect on the overall level of film music?

WH: You know, that is a really good question which I have been busy with. Last Saturday I was at the Princes Christina Concours in the jury, and I see a lot of young composers. It’s a question which I’ve been asking myself about software programmes such as Finale or Sibelius as well. Everything has become very easily accessible, meaning that everyone can write a piece and hear it immediately, and even hear it pretty good when you have a bit of money. A lot of people can come along up to a certain level. The same goes for virtual orchestration. It has become more difficult to separate the good from the bad. I don’t dare to say the level has gone down; there has been a quantitative increase, I know that and this goes for composers in general. I don’t know whether there’s been a qualitative increase, I don’t think so, but I don’t dare to say that the level has decreased because of the virtual orchestration. I don’t think the level has gone up as well. It has been something that has stayed the same in my opinion.

TS: It has switched from one practice to another?

WH: It has switched, and this makes sense, because you’re dealing with a different financial situation in this time. It makes sense people are using something that is standby and doesn’t cost anything after it’s been purchased. It is the case in film music, in music in general and in all art; you have to look and consider how you can keep the quality and how to choose for which medium. When you need strings from a real orchestra I think you should take them. There will be some cases where the orchestra treats things differently than a virtual orchestration. I don’t want to say too much on
that. I’m not the big specialist in virtual orchestration, I’m someone who’s specialized in the orchestra.

TS: Some questions on your own workflow when making an orchestration. Could you describe your creative process?

WH: How you start a piece, this can come on very unexpected moments. This is very unpredictable. What inspiration is, is something which is very hard to put into words. I’m very inspired by other cultures; I’ve travelled a lot, seen a lot, listened to other musical styles, which is a source of inspiration. This could go really far and encompass the whole world. I have to start with a spark, but this spark should be stimulated. I try to stimulate this spark in my busy life by planning rest, moments of doing nothing. It usually comes through doing nothing or walking a bit. Then, I try to make some sketches really fast. Sketches that might not always lead directly to that piece. Most of the times I’m working on multiple pieces at the same time. At the moment I’ve these sketches... I write by hand. I only go to the computer at the last moment. This has changed a bit the last couple of years because I work with someone who puts my sketches in the computer. This already helps, this gives me an image already. I usually don’t have the patience to put it into the computer and it saves me a lot of time when someone else does this. From the moment I have my sketches, I write directly in the original score. I got a really big screen to be able to work in the score. I can’t orchestrate on a laptop. I need an overview. Orchestrating is usually done in the software, Sibelius. For me it’s a changing workflow. You see, I have 2 tables next to each other. I have a keyboard, and a real piano over there. I really like to switch. When I’m sitting here, it’s something different then when I’m sitting there. I compose there, here I am working with the computer and orchestrating. Orchestration is already really soon in my first sketches. I think directly for the medium, the instruments for which I am writing. I’m not writing lines for which I say afterwards where it should be. I hear directly where it should be. It could be that I feel a doubling and don’t know immediately where, so I write something down and put a question mark with it. I usually work this way. It’s a very natural process of going from the ideas, the intuitions to trying to write it out. Sketches on the computer and orchestrate them and make the Sibelius version.

TS: And those sketches, do you make a short score with these so that the piece is finished already?

WH: That depends from piece to piece. The first sketches are like that. The first sketches are never for orchestra or are never in the big score because I let myself be too distracted by all the possibilities and the big paper. Big sheets of paper scare me. I like to work with smaller pieces which I can paste and move around. I start from a short score indeed.

TS: Which sources help you during your creative process? Thinking of books, cd’s, scores...

WH: Books sometimes, but not that much. I’m someone who usually listens. Especially when I’m in a creative process and I’m doubting... Sometimes I use Adler to check some things, but after working with the orchestra and instruments for so many years there’s expected of me that I can do that without books. What I do a lot, apart from my creative process, is reading scores. Preferably bought scores, so I have a large collection of
scores. I like to read music. I have to do this for my students of course, I have to read for jury selections, and then I have the music I want to read. This can be any kind of music. I always like to read through a Beethoven symphony. Not necessarily while listening to it. That’s a tip I give to my students; to read music and try to imagine it. I can sit for hours reading music without hearing it, but then still hearing it. This gives me a good image and helps me; it is my training for writing. When I’m really stuck with a notation problem I often look at my own music and how I’ve done it before. I think I have so many years of experience working on this notation that I think there are few things I can’t notate. I find it really fascinating to read music of my colleagues.

TS: You already mentioned you make your orchestrations on the computer, but what other role does the computer play in your working process?

WH: I use it on different levels. When I write acoustic pieces, Sibelius is a very useful programme to follow the timeline, the form, the proportions and to evaluate these. Rarely because of the sound or how a chord sounds. Sometimes at the end for checking whether I’ve seen everything before I print it out. Very rarely in that sense, so it’s mainly a case of form. I can also use the computer to make calculations, apply algorhythm or use it for sound synthesis or when I’m working with electronics. These are different aspects at the computer, but in the acoustic composition process itself it’s mostly for the time proportions. This is what I find the hardest thing about composing. Even after all these years of experience I still think it is the hardest thing about composing. When do you feel a section is done? How do you feel the size of a piece? Especially when a piece is longer than half an hour or an hour. Especially an opera of two and a half hours. How do you experience this? I still think this is very hard in the composing process.

TS: Could you elaborate a bit on the electronic music? How and when you use it, what the reason is...

WH: I’ve always been fascinated by the new media, from when I was a student myself. Of course, this was a while ago, and at this time we didn’t have the possibilities to work with computers or sound modules. It was the early 80s, so not everything that is possible now was possible at the time. I didn’t do anything for a long time, and around 2000 I wanted to go back to the electronics. I started to study sonology in the Hague, and went to the IRCAM in Paris. It was a reorientation or sabbatical. Now I use electronics a lot, not always. The cooperation with colleagues, such as Jorrit Tamminga, have become really important. Somethings I can’t make or realize, he can help me and really get the piece in a good direction. I really believe in this co-composer activity. Nowadays I use it in my multimedia pieces, in my music theatre pieces it is present very intensely, both live electronics and recorded electronics. There are a lot of pieces, even through my second symphony, where I use the electronics. In the second symphony it is recorded electronics, in the oboe concerto it is live electronics with the oboe. There are a lot of chamber pieces where I use the electronics as a live element, as an extension of the acoustic world. So electronics are really present in my work. Both live and recorded.

TS: Does it have a different function in each piece...

WH: Yes, it has different functions. It can be the extension of an instrument, such as the oboe concerto, where I use a harmonizer which makes the oboe a ‘multi-oboe’, so you
can hear multiple oboes above each other. In other pieces it can be a drone or an ostinato. I believe really strongly in the medium of electronics.

**TS:** I find this quite interesting, because I notice that in virtual orchestration sounds can be enhanced by electronics. You don’t really notice something has changed, but the sound has been enhanced electronically. I find it really funny that you use it in the acoustic world.

**WH:** You know, it’s the case that the use of electronics, and thinking about electronic music and applying it, has had an enormous impact on my own music. The use of reverb for example, that I composed that. Granulation and how I’ve been working with this. Delay lines, harmonizers. In the oboe concerto I composed the harmonizer, that harmonizes the oboe, in the orchestra. The idea of electronic music comes back in the acoustic music. I also believe really strong, also when you make combinations between virtual orchestration and acoustic orchestration, or between sound, samples and acoustic instruments that you really should try to blend them well. This was really a problem, especially in the 70s or 80s, when you had these pieces for instrument and tape and you have the instrument and an electronic sound source somewhere so you really don’t know what the 2 have to do with each other. That is something that is really important to me. Sound is really essential for me; whether it comes from an acoustic source or that it comes from an electronic source; sound is very important. What I do as well is amplifying acoustic instruments, to give them more body. Is it electronic music? There is an electronic device in there, the microphones and the amplifications. I used it when I know it will be played in a very dry hall; why shouldn’t I add some reverb to that? I like to play with this.

**TS:** Are these things you encounter during your process, or do you decide it beforehand?

**WH:** Usually directly while thinking about the concept. Reverb can be later, when I don’t know or know late it is in a dry hall. Most of the times it is during the concept that I have the feeling I need a lot of resonance for example. I build it in the concept, and it is easier to remove resonance as well, you can just turn your mics off. I try to do it. It’s not just something that gets added, it is already present in the conceptual phase of the creating. It’s not that I think: “Let’s throw in some electronics”. It’s very essential, otherwise it is not balanced enough, and then you get the relationship between tape and acoustic instrument. They have to blend together and it should have a purpose. This is something I always believe in multimedia; it needs to have a purpose, the things that are being put together.

**TS:** What problems occur when you’re making an orchestration?

**WH:** A lot of problems. Of course, balance. Balance in the orchestra is the thing I find the most difficult. Even when teaching, when my students ask whether the balance in the score is right, that’s what I find the hardest, and I think this stays. When I talk to my colleagues, even my older ones, this remains a difficult thing. Making a balance between the different groups of the orchestra, how do you deal with the balance between homogenous and heterogenous orchestration. Do I write absolute dynamics, or dynamics in function of the group? For example, a forte for the brass is different than a forte for the woodwinds. That’s a very important aspect in the orchestration. Colour is something I have under very strict control. I can trust my sense of colour. I’m the child of
an orchestra, really. I know the orchestra, and on that level I feel confident. I encounter fewer problems with this. Technical difficulties, when you might think you’re writing too difficult for a certain group. The strings for example, where I sometimes have the feeling that the string group in the orchestra is the most difficult group. You’re dealing with a large group of people who play classical-romantic music, and play a lot the same. Wind players usually play solo lines or chords. How do you deal with this in today’s music? When do I use divisis, when do I split the group? It is practically difficult to keep them apart. The organization of the orchestra, in the score as well, is what I find the most problematic in orchestration. So for me, it’s the balance and making sure…. I like to place a lot of things above each other. In my music, I’m kind of a Burgundian who composes who has a lot in terms of sound, and I want to get some kind of transparency in this. I feel now that I know that in my next pieces I want to work more on the transparency in the orchestra, and not always in the boosting of the orchestra. One of my important things used to be to create a sound that is very full. What you hear in pop music or amplified music is a sound which I sometimes miss in the orchestra. That’s something that’s always been my obsession. Now this is shifting a bit to transparency.

**TS:** Which elements do you use to make your sound more full or more transparent?

**WH:** I think with the fullness, of course talking about doublings and the doublings between percussive and sustaining sounds, for example attack in the brass and sustains in the strings. When do you double, or do you add octavers in the basses to add body there? Or piccolos and high crotales or glockenspiel to extend the range of the orchestra? I always find this an important element, there is where you see an orchestrator, who is someone who makes the apparatus sound. But there’s a danger in this as well, because it can become easy or cheap to always work in this range and opening your filters. It’s finding a balance in the orchestration by boosting low and high and still trying to make a realistic sound. I think you shouldn’t try to suggest an amplification of a sound in your orchestration. You can suggest it, but you shouldn’t try to fully realize it. This is what I mean with boosting sound.

**TS:** Talking about sound; we just talked about how sound is important for you. Is this also the starting point when you start to orchestrate?

**WH:** Yes. The sound should be right, and it comes directly. The sound is refined in the orchestration, but it is already there directly. I know directly when a chord should be for 3 flutes, a clarinet and an oboe. When you ask me how, that is really difficult to explain, but I hear the blend between the instruments, without me having to hear them in Sibelius or with a virtual orchestration, No, I hear it directly.

**TS:** Does it happen when you think of a sound that it’s not there in the orchestra available to you, or that you think you’d want more? Are you looking for elements to enhance this sound?

**WH:** This is always a challenge with a commission, that you see for which group you’re making the orchestration. It can work inspiring, when you see for what group you’re writing. I think when you have the feeling this orchestra has a good brass section, I find it evident to put this central in your imagination of the sound. Or the other way around.
TS: Do you feel burdened with the fact... Sometimes you want a sound which is not in the orchestra, do you sometimes think of notation as a barrier or a restriction?

WH: I think you always expand. Both to the possibilities of the players and the orchestra. Not every orchestra will always do everything you have written down perfectly. I think that’s already there, that you have to expand the barrier. The same goes with your own searching; how exact can I be to notate this sound? There are always sounds that might need electronical means earlier to get realized than through acoustical means. It could be that I have no electronic means in my arsenal or they’re not in the concept, I still try to realize them. Then I start experimenting. Experimenting in function of the sound I have. I find this word, I rather call it searching. The experiment can be there in function of researching the sound itself. This could even happen during the rehearsal. This is a very functional searching during the rehearsal.

TS: What do you think is the advantage for a virtual orchestrator to know musical notation?

WH: I think it is the physical. I think you should orchestrate with the physical possibilities and properties of the instrument. A double bass is no piccolo, also not how it is played. A trombone is no violin. That’s not just the sound that is different, everybody knows that, but it is a physical element that is different. I think the physical quality is the thing that makes the biggest different between virtual orchestration and real orchestration, because you’re working with people and with physical qualities of people. This means that when you virtually orchestrate you can make the trombone player play as fast as you want without him having to breathe. You can do anything, and that’s not realistic. The question is: How far do you go in this? That’s the biggest difference for me. The physical aspect, so there are no people involved. That’s not just that they have to breathe when they play the trombone, that’s not it, it’s also how it works physically.

TS: What do you think is the biggest advantage of starting from sound?

WH: I think you can compose, orchestrate and create in the way that you want. When you have the feeling you need to hear something first and you say you work in Logic or Ableton, want to work with trial and error and want to look for the sound I’m imagining, and you feel better at this as a creative person, then just do this. Why should you sit at a table looking for a sound when you’d rather look for it on the computer? I don’t make a difference in this. The only thing I think that might be useful is that your imagination is enhanced. This goes both for the virtual as the acoustic orchestrator. You imagine the sound yourself, and by doing this more and more you make a sound which is more of your own. Otherwise, you just do something and copy that what you know from other scores, sounds or recordings. When you imagine, or try to imagine the sound you will start to think differently. I think, for example, when I play chords, melodies or tones at the piano and you try to imagine the sound of this chord in the orchestra directly... In the beginning this will cost time, and you can’t always test this, but I believe in such a way of imagining what the sound is. As well for the virtual orchestrator, because that’s where the point is where you do everything with the technology. Why shouldn’t you use technology? You should, but you might undermine your own imagination.
TS: It would be better to imagine it first and then make it as you had imagined it with all the electronic means you have at your disposal, than just goofing around looking for a sound?

WH: That’s my vision on this, yes.

TS: All right. I have some questions on my preliminary conclusions. The first one is the ‘human’ element, which acoustic music of course has. My first question is if you could describe the feeling of a first rehearsal.

WH: That is a fantastic feeling. That goes between tension and despair. Of course there’s a big difference when it is a first rehearsal for a premiere of a piece that you’ve never heard or when it’s a first rehearsal with an orchestra with whom you’ve never worked yet. Both are different. Both are exciting, and I still love this moment. My students often ask whether I’m comfortable or more confident or less nervous during a rehearsal, but I remain as nervous as my young student composers who go there for the first time. This stays. I think that is a good thing, otherwise you go there with the feeling that you know and have control over everything. I sometimes have the feeling I have it under control and I have confidence in myself, but I’m still excited. When you can work with an orchestra who want to look with you and cooperate on the balance and look for the possibilities and the refinement, then the tension and nervousness is gone really fast. A first rehearsal stays a huge challenge. It is really incredible what we do as composers. We write something down, we hear it, and then we have to evaluate on it whether it is good what we hear. It is almost an inhuman task to do. It is like a conductor who has to do that as well, but as a composer you’re even more held accountable for what you write. You write all those dissonances, but have you heard them all? Do you hear everything you’ve written down? That’s asked sometimes as well. I don’t know if I really hear everything. I’m not really focusing on this during the rehearsal honestly, I want to convey the music and the thing I want to realize. That’s what’s important for me. That’s my feeling in a first rehearsal. Excitement, nervousness, but always the feeling that I have confidence. I have a lot of confidence with everything I do. But that doesn’t mean that I’m certain with everything I do, but I do have faith in it.

TS: And this is confidence in the composition?

WH: I have faith in the composition, but I also have faith in the people who perform it. I have faith in the deliberation when things aren’t going well. When things don’t work, because of different factors, I never feel too good to adapt certain things. Even when I have the feeling a group can’t play something or I’ve thought of something wrongly. This could be, we’re all people. I never go to an orchestra untouchable. That’s how I teach, with doubt sometimes as well. I think you should doubt as an artist. People who know everything are boring people.

TS: Could you further describe what a performer adds to your work?

WH: I think a lot. That depends whether it is a concerto or a group of people.

TS: Let’s do group for now; we’ll go to concerto later.
WH: Each orchestra has its sound and has its sound for each section. I think of this at a premiere, for which orchestra I’m writing it. Later, you don’t have control over this anymore. This human way of interaction and dealing with your music really adds a lot. I also find it important when you know how much time you have for a rehearsal that you have a perfect score, so you can work on the music and the sound, the dynamic variations and evolutions, and you don’t have to check whether something is a C or it’s right or not... The people add a lot, but you also have your own responsibility as a composer to make sure you deliver your score as flawless as possible, so you don’t have to deal with that. A mistake might be there, but you can work on the music. That’s the interaction. As a composer, your first interaction with the orchestra... The orchestra takes your music to the audience. You don’t tell your music to the audience; you tell it to the players and the orchestra. With a solo piece it is something different. Then you write even more for the player, and then you get a perfect symbiosis between the physical aspect of what someone can do with their instrument and the character someone has as a performer. So those 2 are fully connected in that case.

TS: So in that case you work very intensively together with this person?

WH: Yes. And I study this person as well. I look at what he has played, what his qualities are, what his strong points are, really. You should put someone in the light as good as possible when he is a soloist and you’re writing a solo concerto for him.

TS: Besides studying the person, having an instrumentalist in your studio to be able to try out things and put things in front of him, what does this do to the music and the orchestration?

WH: The music gets more intense. I think a score or a piece is really finished when you have the feeling it has to be like that. There can still be many changes. Changes in the sound, but also when you feel someone plays it in a way that you want to make a new edition or version of a piece. By experiencing the piece, which is quite another thing. Even though you’ve constructed the Sibelius or Finale timeline in such a good way, experiencing it live and having the feeling that you’re working on it, there are still surprises. That’s what I find fascinating about making art and making music, that these surprises have this sense of unpredictability, and this is what makes it exciting and fascinating. Otherwise, you would trust and reproduce on your auto-pilot. Sometimes, in certain situations, you can feel that people do this; because of time pressure when you have to make a piece in 2 or 3 weeks, then you need to deploy your tricks and things you’re good at. You can’t do it otherwise.

TS: On to the next conclusion about restrictions on orchestration. Do you ever feel restricted when making a new orchestration?

WH: You’re restricted by the fact that each instrument has its restriction. The instrument has its restrictions and the player has his restrictions. That’s true, but in the restrictions we can see the master. On the one hand you want to break through the restrictions, but on the other hand you have to accept them. I think that is something inherent of humans; that we want to expand on these restrictions. That’s the case in sports as well, and with a lot of other cases. I can deal with it pretty well; it usually is a
stimulant, an assignment in which you say: “Can you do it with this instrumentation?”.
Maybe do something less. That doesn’t bother me a lot.

TS: So you look how you will deal with it within the situation that was given to you, and you don’t try to put ‘steroids’ in your music?

WH: Yes. You have to adapt to what is asked of you, that’s a part of our profession. We have to be able to do this, and don’t complain that we might need an extra trombone or something. No, that’s just whining; then you do it with 2 trombones. When you can’t do that, than you shouldn’t take the assignment. I think it’s something that might put new sounds in new pieces.

TS: Have you ever considered that electronic music can be a solution to this?

WH: Not in that way. Electronics is not a surrogate for acoustics in my music. It’s an extension, a confrontation, an enlargement, but this is defined in the concept of the piece. I’ve never done it, it might come, but I never used electronics to hide something or expand something in an acoustic environment. The only thing I might say, but that is still in the concept, is spaciousness. While I’m saying this, I think no, because I’ve done that acoustically as well. I don’t think I did that. It is always a conceptual thing with me.

TS: What do you think is the biggest advantage of acoustic music as opposed to electronic music and virtual orchestration?

WH: I think that it, and I dare to say this, I think it is more honest. I think it is more human. I don’t want to say I’m again virtual orchestration; you ask me to compare the 2 and I do so. When I have the possibilities, and I think a lot of orchestrators would think that way, to work with a real orchestra and with real musicians, give me the real orchestra instead of a virtual orchestration. I think this human aspect, that you feel it is physical... I have more faith in man than in the machine. I don’t say this from some ideal and it is not a philosophical or spiritual argument, but I do mean it.

TS: And the other way around... What do you think is the biggest disadvantage of acoustic music as opposed to electronic music?

WH: Financially, it is more expensive. It is unpractical, you need a lot of people. You’re tied to unions, time limits, limits of what people can do. All kinds of restrictions why you would say: “Wim, why don’t you use a virtual orchestration?”’. Definitely, you can make it whenever you want it. If you want to make your orchestration virtually in the middle of the night then you do so. There are no limits, so in that sense virtual orchestration only has advantages.

TS: So this is mainly in the practical sense. And if you would let go of the practical?

WH: I don’t know if this has advantages... I don’t think so. Boosting a sound or getting a sound... You know, in one piece, which is not a virtual orchestration, in my second percussion concerto, I used doublings with synthesisers for a short amount of time. So the string sound of the orchestra was doubled with the string sound of the synthesisers. But even this was a conceptual given; I really wanted to put those 2 together and I
wanted to make a Yamaha DX7 sound of the strings combined with the real strings. So that wasn’t really a feeling that I wanted to enrich them. But I can imagine that, I don’t know this for sure, the virtual orchestration can be in a certain way, but I’m really no specialist in this field, can be of added value and make the sound richer, but I don’t dare to say this. So that could be something on the artistic side of things. But personally I don’t see advantages.

TS: Now to wrap up. This research is about the effect of written and electronic orchestration on the other side in virtual orchestration. Do you think I’ve missed something that might be of value for this research? Or do you have some concluding remarks?

WH: No, I think it is fascinating that a film composer might know both, because the practice dictates that you have to know the 2. This is one of the reasons why I put my contemporary composition students in contact with film scoring and virtual orchestration. I don’t know if you need this as an acoustic composer. It could be of use; you can let people hear your piece before and you can put a sound to it already, and a virtual orchestration could have a better sound than the Sibelius sounds. So in that sense it can probably do no harm. I’m not the person who is working on this. I know it, and I know the sound banks, but I’m barely working with them myself. I don’t see the advantages of this, but I also see no disadvantages. As a young artist and composer you have to know this. Whether you want to apply it or keep applying it is a choice of your own. But the same thing is the case for acoustic orchestration. When someone composes and doesn’t want to write for orchestra but just for choir then that should be possible as well. You have to know it and it is up to you to apply it.

Interview Theo Verbey 07/11/17

TV = Theo Verbey
TS = Tom Schipper

TS: I want to start with some introduction questions about what you do and what your background is. The first is if you could describe the professional activities you are currently undertaking.

TV: At the moment I am writing a piece for large orchestra, in terms of a classical concert as given by a classical orchestra. I teach instrumentation at the Conservatory of Amsterdam to the jazz students and the students in classical composition.

TS: This is instrumentation based on historical pieces?

TV: Yes, with instrumentation structured through history. This means that I start with a classical Haydn orchestra. Before this we do exercises with string quartet and wind quintet. We work from Haydn until Messiaen and Webern through a 3-year course that is compulsory to all composition students. This provides a lot of homework for them, and comes with a lot of studying of scores and harmonic and structural analysis.

TS: Is there still a bit of knowledge of instruments covered in these classes?

TV: Yes, but now a colleague is covering this.
TS: Do you have any experience in writing film music?

TV: I have written once for an ensemble, Wien Modern, one of the modern ensembles from Vienna. I did a project with them once for which I wrote music for an existing film of Man Ray. I never collaborated with a filmmaker. And one time a piece of mine was used under a film, so the process was turned around.

TS: So this experience was meant for a setting in which the film was projected and the music would be performed live?

TV: Yes, exactly. So I’ve never experienced the process of recording and editing of the music, and noticing a director doesn’t like it and wants it differently.

TS: What do you think of the fact that virtual orchestration has become a common practice in film music nowadays?

TV: This is a very difficult question…

TS: Or what do you think, this is my next question, it has done to the level of film music in general?

TV: Those are very hard questions… What I think is happening is that there is no loss of craftsmanship, but some kind of shift to people like Hans Zimmer who work with enormous banks of samples and an extra computer set-up with which he can produce numerous versions of the same A of an oboe. I would need to think longer of what I really think of this… I don’t have a really sharp image of a lot of film music. I look at films and I listen to the music, but sometimes I hear things I find very good and sometimes it’s not good at all. But isn’t this the same in concert music? I find this relation of cause and effect very hard to make.

TS: What might be the danger now is because of these sound banks any kid with a laptop could write film music. The danger might be that this shift of craftsmanship has occurred from composing to making it sound good.

TV: Yes… I don’t know… This concerns such huge amounts and large processes that every generalized remark is too heavy. If you want to talk about specific composers and works I can give you a better answer to that.

TS: Then we put it there for a while. Now to some questions on your creative process. Could you describe this step by step? From the first sketches to the final orchestration or performance.

TV: Of an existing piece or a new work of my own?

TS: I suggest of both.

TV: Let’s do it first of an existing piece. Half a year ago I orchestrated a song by Rachmaninoff for the Concertgebouw orchestra. They thought they had an
orchestration, but it was just for orchestra and in a wrong range. It was written by Rachmaninoff but it was full of mistakes and unplayable. What I do first is to study the score, in this case for piano and voice, very carefully. There’s always a harmonic analysis involved; from A to Z, do I really understand these chords, in roman numerals and with all modulations. Also when it is very complicated or can hardly be done at all, with composers such as Webern; when it is somehow structurally understandable, this is what I do first. After this, I make some notes with what comes where, and then I complete it.

*TS: By hand, or...?*

TV: No, I do a lot of these instrumentations in Sibelius, my own original pieces are still done in Finale. I use Finale since 1992, so about 25 years. Before Finale was there already, but it was very primitive at the time. Computers were very expensive at the time. My first Apple in ’92 was about 6000 to 7000 gulden (?), which is of course a huge amount. Before that I did everything by hand, also instrumentations, according to the same process. Most of the times I first write down the most important things. Write as much as possible horizontally, such as all melodies and afterwards additional voices. I work very little in a vertical way.

*TS: And with a piece of your own?*

TV: I very often first make a short score. This takes a lot of time. When the instrumentation starts I can exactly calculate how much time this will cost me. I usually write 6-8 pages a day, on which I work the entire day. But you know how much measures fit on the page. Sometimes you have a week delay, but you can calculate how much time this will cost you.

*TS: You told that the introduction of Finale hasn’t changed your writing process but just digitized it. Now you perform the same acts in the software as you did when you wrote by hand?*

TV: In the same order at least. When I started I digitized some older arrangements I did to get to know the software. You learn a lot that way, and can use a lot of possibilities with some 20th century and late 19th century music. I think there has been an involvement from this notation software, but you do lose it over time. I don’t find it very difficult to do it by hand again, which I still do sometimes. I don’t work faster in the computer.

*TS: I know from Finale that the sounds that you hear when you enter a note or hear a playback sound terrible. Do you use this playback or not?*

TV: I use it very sporadically to check for wrong notes. In instrumentation I never use it for the sound. It’s so absurd. It serves no purpose to me. I could be able to develop the technique to get it right, but I wouldn’t do it in Finale, but in Logic for example.

*TS: So if you would want to hear a sound and how it would approximately sound in the performance, you could do it in Logic?
TV: I don’t do it that way. Before I am really satisfied with the result of about 4 bars... I practiced a bit with Logic to try to get it from the computer in some kind of convincing way. This takes ages. I don’t know well enough how it’s done; I learned it by myself. This is probably taught nowadays.

TS: What sources do you use during your writing process, like CD’s, books and scores?

TV: Everything, but mostly notation, scores.

TS: Does this differ with an instrumentation, for which you’d look at Rachmaninoff when to orchestrate him, or with a new piece? Which scores do you use with a new piece?

TV: That really depends on what it is. If you remember something from a Bach Cantata that you could use, then I look at that. It can be very broad.

TS: So you look at what is relevant for that piece at that time?

TV: Yes.

TS: We just briefly talked about notation software. Does the computer use another role in your writing process or is it limited to entering the notes in Finale?

TV: It is more than just entering the notes. Most sketches are done by hand, but the short score is done in Finale as well. It is more composing than just transcribing something.

TS: Do you use Finale with keyboard to enter notes faster?

TV: Yes.

TS: When you make an orchestration, whether of a short score of an existing piece, do you stumble upon problems? Or which problems might occur?

TV: When using notation software?

TS: Not per se. In orchestrating in general.

TV: You constantly encounter problems. There’s always the consideration of the style, the different possibilities, what is the sound you imagine? Your sound imagination can be really good, so when you hear it played it sounds the way you meant it to, but there is always a little difference. Some things might work out a little different than you expected. It sounds good, but when you go through the first rehearsal, which is always a bit of a gruesome moment, your idea of it transforms. But it is never something completely different than I imagined. Sound imagination stays difficult. Even when you do it for a very long time; it is not taken for granted.

TS: That would be my follow up question, concerning this experience. Is your shock at the first rehearsal as big as it was 10-20 years ago?
TV: No, something always changes in your perception of the piece. And afterwards you can’t really listen to the electronic versions any more. That really is not the piece.

TS: We talked about the problems that might occur during a first rehearsal. Which elements which change during the first rehearsal are more of a positive? That might be better than you expected?

TV: I find that very difficult. I am fairly sure of what I am doing. It is a choice to do something in a certain style, and this shifts when you write professionally for 30 years. Your preferences change; I wouldn’t do it now the way I did it 30 years ago, but this makes sense. You’ve done already, you add something new and want to try different things. When you don’t you’re recycling yourself. This works every time, so it will work now, and that way those piece will start to sound alike of course. That’s not the intention. But you take risks. You get into a different bus each time that takes you to a different city. You trust the bus and the city, but you have to get outside of the certainties you have usually.

TS: Going outside of your certainties, how do you apply this in your orchestration process? For example, how would I orchestrate this melody differently than I have done before.

TV: That could be, yes. But that is not really predictable. But it can’t also really be described, because a lot of what you do when writing is non-verbal. You don’t think in text or in words, and this makes talking about it very difficult. Now I think: “Yes, what am I doing actually?”. A lot of what you do is non-verbal, while there is a lot of brain activity going on. Just like with playing an instrument. When you play the most you do is non-verbal while you exactly know what can be done differently or better. But try to explain is, this takes a while.

TS: Continuing on that a little... We know the orchestral sounds as they are. Do you often look in your orchestration process on how to polish these sounds a little? Not necessarily in playing techniques, but in continuation of the bus to a strange city, how do I make this line sound differently than before?

TV: Still difficult... I try not to work on routine too much. I don’t really learn by heart what I have done before.

TS: Do you have some examples of orchestral pieces in which you did something that you didn’t do in a previous piece?

TV: Also difficult... I always start with an empty page with everything set aside. This might take very long. It takes time when you consider all possibilities or have to learn something extra. You have to know what you exclude, but I don’t really exclude anything when I start. That’s why it takes long before I have something on which I can continue.

TS: Let’s go on. Did you ever work with an instrumental player on a new work?

TV: Yes, with trombone, clarinet and piano players. I wrote 3 concertos, and I used to have a short score and solo voice in quite an early stage, and we went through this, and
some things changed in this process.

*TS: Which were the elements that could still change?*

TV: A lot of details. This might just work or might just nog work; negotiating a bit. But trying things out as well.

*TS: Have there been scenarios where the instrumentalist comes up with something that you hadn’t thought about or would push you in another direction?*

TV: No, I’m way too enforcing in these things. When I am at the stage where there is a short score, I want to try it out and know what it might do. When it is necessary I change it, but these are details that are really unplayable. Concertos are extremely difficult pieces. My trombone concerto, which I wrote 10 years ago, might be played by 10 trombone players in the world.

*TS: So the instrumental player joins when the short score and the solo part have been finished already? The solo part is written based on your own knowledge of the instrument?*

TV: Yes.

*TS: How would you describe, the major difference between virtual orchestration and live music really, interpretation…*

TV: Yes, but also reproduction of sound. Virtual orchestration will come from speakers in the end. I think that is the most essential difference.

*TS: I think those are connected. Both the musician adds interpretation and he makes it sounds in the concert hall instead of digitally through speakers. What do you think is the biggest advantage of a live performer?*

TV: The live musician, and mainly the situation, spreads the sound a lot more in the stage and the 100 sound sources who are sitting there. Speakers are point sources, so you get the sound from a very restricted source. This is covered up and can blend together of course, but it does work more static. So it is the dilemma what you have in the cinema with surround. It is not as static as with 2 speakers, and technically impressive, but it is not the concert experience.

*TS: What do the musicians add more to the concert experience?*

TV: The fact that this happens before your eyes, and it is played with this instrumentation in this space, this is unthinkable without the musicians of course. The one is not conceivable without the other.

*TS: When we talk about the other side, the part of interpretation, this is very hard to emulate in virtual orchestration because it remains a MIDI instrument. How could you describe the thing that musicians add to the music after that? It doesn’t only add to the concert experience, but to a recording as well. What’s the best thing an instrumental player can add as opposed to a virtual reproduction of this?
TV: As soon as it comes from speakers, something is lost already. You could say something is won, because it is more predictable and manageable, you can cut and paste it. In a technical sense, in terms of sound manipulation you can do a lot more with it. Interpretation already starts with a scale. When multiple people play a scale, even when you say it needs to be the same tempo and the same scale, there are already interpretation differences. It starts with a very basic level. You understand I think it is a very important part of the whole. I delegate it to the musicians, I don’t meddle with it.

TS: So when the piece is finished it is up to the musicians?

TV: Most of the times, yes. That there are different interpretations generated from the same score is actually really beautiful. This is really what a captured sound version doesn’t have. You can have some versions of the same piece next to each other which are all good but different. You lose this with a recording or a virtual orchestration, which is of course a recording as well.

TS: In virtual orchestration the composer is directly responsible for the interpretation. You have to program it yourself: It is one person who provides the interpretation of the 100 people or so he is writing for.

TV: It remains a recording. You capture it once in a recording.

TS: This being able to edit the music, would you say this is the biggest advantage of electronic music?

TV: Advantage for whom?

TS: An advantage for the final product maybe? In terms of the artistic value.

TV: This really depends on how it is done. Every general remark is put down when it is not properly done. I am not of the school that shoves all film music in the bin, that’s not me. I also don’t think everything is well thought of or really great. I keep some distance.

TS: What would you think is the biggest disadvantage of live music as opposed to electronic music?

TV: The circumstances are way less predictable. With speakers and in cinema it is very strictly regulated how this works and how the sound tracks need to be processed. In the concert hall you’re really dependant on the quality of the orchestra. This can’t be controlled as well. But this is at the same time the advantage, so you get different versions, also depending on the acoustics of course.

TS: Let’s go to restrictions. It might be that you write an orchestration and you need an instrument that is not available in the orchestra. Considering this as an example, do you ever feel restricted when writing an orchestration?

TV: Yes, but this is not a bad thing. Restriction does sound as a negative thing; I need a fourth trombone, that would have been nice. You might come with better solutions when you don’t have this specific instrument. I’ve never had the feeling that something might
have been a genius masterpiece when I would've had this one instrument. I don't believe it is dependent on that. You try to create a coherence between the apparatus you need and the piece you are writing. When you leave something out, because someone is ill or delayed, that really is a shame.

*TS:* Of course, you're talking from the classical orchestra structure. What you often see in film is that you're not necessarily tied to this. It isn't always about recreating an orchestra or to use it in film, but on the other side, this might have its advantages because you have more possibilities. You're no longer tied to where the instruments are placed in the hall, that you have to use the entire orchestra or that you can't use 12 horns instead of the 4 you have available, but this is of course a different context.

*TV:* In a film studio you make recordings, and you can dub certain things. You can record 4 horns 3 times so you can dub to 12 horns. When you want to do that...

*TS:* Have you ever wanted something like this?

*TV:* No, from the first notes it is tied to the orchestra I can use. When I write the short score I am concerned whether I have winds in threes or in doubles. I take this with me; I don’t really know how but I do it.

*TS:* What do you think is the advantage for a virtual orchestrator to know musical notation? We often see they work with MIDI, but what do you think is the advantage to being able to write it out as well?

*TV:* When you want to have it played you'd have to write it out. I think you can take a lot more from music when you know the traditional notation. There might be a lot of people who don’t know how to read music as a film composer. People do have to use their ears well, that's what I find more important. I can’t really asses how this restriction would be.

*TS:* So as long as your ears are good, starting from sound might be a better way?

*TV:* When you really know nothing of notation and can’t read notes, your ear has to be really developed. And you need to have a really good memory. This piano player from Abba, who can’t read notes, has made recordings of orchestral pieces and he can sing every part or play it, and others will make the orchestral parts. There is a very good imagination of the sound behind this and that is of course the essence? It does remain tricky when you can’t read notes.

*TS:* I've told you this research is on how electronic orchestration can have its effect on virtual orchestration and how classical orchestration can have this effect. Do you think I've missed something that might be an addition to my research?

*TV:* No, I think we've covered the things that I find essential. I do see the dilemma when you start virtually orchestrating it becomes something out of a speaker. There is a restriction in this. Is it really the intention with virtual orchestration that they are real players who have played it without further manipulation to the recording or the performance? It really is the question whether you want this. What becomes the purpose? When you say it is born from a need because the budget doesn't allow an
orchestra and an orchestral recording, or you make the orchestral recording and add electronic elements, which of course happens as well, is all conceivable. Then you get to the realm of personal preference. What do you think is pleasant to listen to? I have some trouble when I am in the concert hall and I hear things of which I think I can’t indicate them in the instrumentation or don’t know how it is compiled. That makes me feel uncomfortable. As a rule, I can do this; when the harmonic content is very complicated I can still follow the instrumentation. The question is what the goal is of the virtual orchestration. What should it do that common resources cannot do? Or you say the virtual instruments are the common resources and a live performance with musicians in the concert hall is the exception. This is where it probably will end up, I do see this shift. You need to have an artistic purpose, and this defines which means you will use, supposing there are no financial restrictions. My impression is that virtual orchestration is born from a need, when you can’t afford an orchestra and you have to pull it from your sound banks.

TS: So it didn’t originate from a goal, but as a means.

TV: Yes, I don’t know if it really is this way, but it is in itself not a good motivation. The introduction of electronics in music, and not in terms of music notation, has existed for about 70 years, so we’re still at the start of a development. Which way it goes is really unpredictable. I didn’t expect the enormous amount of DJ’s and electronic music, while I’ve seen it originate from nothing. It has originated in about 30 years, which is not a long time in the history of mankind or western music.

TS: Yes, also because everything has become cheaper and more available. That first Apple was so expensive, but now every kid with a laptop can become a DJ or start virtual orchestration.

TV: I think there are still some barriers. I don’t really know if I answered your question what the state is of virtual orchestration... The technological development has gone very fast in the last 70 years, and at a certain moment there are a lot of possibilities, but at the same time, there is the restriction of the speaker. It is way more fixed than what an orchestra does with a score in a random concert. A conductor might conduct 4 concerts with the same orchestra and the same program, but it is not 4 times the same, not as exact as when it would be a recording. It can differ immensely. When they make a live recording which they cut from these 4 versions, they have a lot of trouble to bring these 4 takes together. I do prefer this, but this has a lot to do with my background of course, and that is exactly the restriction.

TS: For me it is good to see how to bring this together. How electronic composers can learn from the classical experience and how this can add to virtual orchestration.

TV: But then it is still the purpose of virtual orchestration to continuously trick the listener. You have electronic means but are expected to listen to a real orchestra. When that is the goal, then it could be. It does seem like a lot of work.

TS: In the end, live will be better. I don’t think virtual orchestration would catch up with a real orchestra.
TV: I don’t think the Concertgebouw orchestra will be replaced by synthesizers.

TS: But not in film as well. *When the film has the budget for it I think they would always choose to record instead of virtually orchestrating.*

TV: That is the case until now, but I think, and I mean this seriously, that you’re at the start of a very long and interesting development that is not predictable, and that is really interesting. What is there in 5 years, also in new genres? We think we know how it works, but 20 years ago we thought that as well and it turned out not to be the case. I am very curious what might happen. I hope you get the experience that you encounter something that you didn’t expect. I don’t think there is a moral side to it. Someone who simulates an orchestra with electronic means; I might not think it is beautiful, but I don’t think it is repulsive or something. It is a restriction but it also has its advantages that you can get it out there. Sometimes I sound moralistic, but I think the moral is not connected. Everyone should be able to do what they think is beautiful. This is pretty fundamental and something I do think morally. The fact that I’m not always convinced doesn’t take anything from that.
9. Reference list


