



**Splitting the world:  
distributed performance as document**



**Astrid Johanna Sømhovd**

*Masters Thesis in Documentation Studies  
Faculty for humanities, social sciences and education  
University of Tromsø  
Spring 2011*



## **Acknowledgements**

This thesis is the result of a lengthy process where I've been introduced to the field of distributed performance. My starting point was zero knowledge on the subject, and getting to the end of this thesis has been both a struggle and a pleasure. This would not have been possible without the patience and encouragements of friends and family, so many have cheered me on. No one mentioned, no one forgotten.

A grand thank you to my wonderful advisor Niels Windfeld Lund, whose knowledge, patience and gentle prodding has led me into and out of the Master maze. Couldn't even have done it, much less started it, without you!

***Front page illustration***

From "Flesh and media: an interactive salon", 23 April 2011, UC Berkeley.

"At this interactive event, audience members will have an opportunity to engage with Active Space technology, which allows live performers to influence and interact with technical elements in a direct, immediate way." (Event-URL: <http://www.happenstand.com/sanfrancisco/events/5952-flesh-and-media-an-interactive-salon>, retrieved 9 May 2011)

Photo: Astrid Johanna Sømhovd

# Index

|  |     |
|--|-----|
| Splitting the world:   |     |
| distributed performance as document.....   | 1   |
| Front page illustration.....   | 4   |
| 1 Introduction.....  | 7   |
| 1.1 Background.....  | 7   |
| 1.1.1 Distributed performance.....   | 9   |
| 1.2 Terminology.....   | 13  |
| 1.3 Focus questions.....   | 19  |
| 1.4 The structure of the thesis.....   | 24  |
| 2 Documentation studies and the performance.....   | 25  |
| 2.1 Method and analytical levels.....  | 25  |
| 2.1.2 Agent and role (human – individual/collective) .....                               | 27  |
| 2.1.3 Means (medium).....  | 28  |
| 2.1.4 Mode (tradition).....  | 30  |
| 2.1.5 Result (document).....   | 31  |
| 2.1.5.1 Temporality.....   | 32  |
| 2.2 The performance as document.....   | 33  |
| 2.2.1 The material character of performance.....   | 33  |
| 2.2.2 The cognitive/mental character of performance.....                                 | 34  |
| 2.2.3 The social character of performance – the connection .....                         | 34  |
| 2.3 One-site performance versus multi-site performance.....                              | 35  |
| 2.3.1 Remediation.....   | 36  |
| 2.4 The purpose of considering and analysing performance as document.....                | 38  |
| 3 [Distributed] performance as complex(es).....  | 42  |
| 3.1 Advancing into the complex.....  | 42  |
| 3.2 [Distributed] performance – document complex.....                                    | 42  |
| 3.2.1 The performance document and its docemes.....                                      | 44  |
| 3.3 [Distributed] performance – producer complexes.....                                  | 46  |
| 3.3.1 The performer as producer.....   | 47  |
| 3.4 [Distributed] performance – media complexes.....                                     | 49  |
| 3.4.1 Space .....  | 50  |
| 3.5 [Distributed] performance – user complexes.....                                      | 54  |
| 4 History of distributed performances.....   | 55  |
| 4.1 Milestones in Real-Time Networked Media 1966-1998.....                               | 55  |
| 4.2 The Technophobe and the Madman.....  | 58  |
| 4.2.1 The complexes.....   | 60  |
| 4.3 – point 25.....  | 62  |
| 4.3.1 Elements of the performance.....   | 65  |
| 5 Collaborative workshop: Development of graduate studies on networked performance ..... | 68  |
| 5.1 Background.....  | 68  |
| 5.2 Planning process.....  | 70  |
| 5.2.1 The pieces .....   | 74  |
| 5.3 The workshop .....   | 78  |
| 5.3.1 The second workshop – Tracing a Memory.....  | 80  |
| 5.4 Identifying complexes.....   | 81  |
| 6 Coming together.....   | 82  |
| 6.1 Focus questions.....   | 82  |
| 6.2 Telematics and opera.....  | 85  |
| 6.3 Criteria for art .....   | 86  |
| 7 Bibliography.....  | 88  |
| 8 Appendices.....  | 92  |
| Appendix 1.....  | 92  |
| Appendix 2 .....   | 93  |
| Appendix 3.....  | 94  |
| Appendix 4.....  | 96  |
| Appendix 5.....  | 98  |
| Appendix 6.....  | 99  |
| Appendix 7.....  | 101 |
| Appendix 8.....  | 102 |



## **1 Introduction**

### **1.1 Background**

My project originally started as an idea of a sub-study under a World Opera-project, specifically the production of Gilgamesh. The World Opera is an organisation/institution whose aim is “[to bring] the members of the global village together through the exploration and presentation of humanity's rich and diverse performance traditions”. World Opera includes the World Opera House, described as “a meeting place for global performance. It is an opera house for the citizens of the world, allowing for the real-time interaction of artists through cutting-edge communication technologies.”; and the World Opera Stage described as “a collection of performance sites distributed throughout the world [... it] provides the technology necessary to mediate time and space.”<sup>1</sup>

Our work is inspired by the Florentine Camerata, whose members – humanists, scientists, musicians, and poets – were drawn together during the 16th century by the desire to combine classical Greek drama with (then) contemporary musical practice. What resulted was the development of a new musical-literary hybrid, the foundations for what we recognize as opera today. [...] In a similar fashion, the World Opera is gathering technologists, theorists, artists, musicians, hackers, and people from the business sector to bring new innovations to current performance practice. We recognize the strong musical, literary, and emotive heritage of what has come before, and we believe the World Opera House and Stage will provide future creators and audiences with new tools to interpret, develop, and experience opera.<sup>2</sup>

The specific work I'm doing now is no longer formally linked to a project or production by the WO, and the case material, i.e. performances, used are not opera performances. Yet the initiative taken by the World Opera, and its main aim, is so

---

1 The World Opera, URL: [http://theworldopera.org/?page\\_id=2](http://theworldopera.org/?page_id=2), retrieved 9 May 2011

2 Ibid.

closely linked to my work that I still consider my thesis as a metaphorical offspring of the World Opera. Later in this introduction my current study objects will be introduced.

My institutional affiliation is the department of Documentation Studies at the University of Tromsø, and my thesis is part of a project to develop a collaborative graduate studies programme, specifically for networked performance, between institutions in Norway and North America. The specific institutions directly involved are: Center for Computer Research in Music and Acoustics (CCRMA) at Stanford University, California<sup>3</sup>; Department of Music and Performing Arts Professions at New York University<sup>4</sup>; Center for Intelligent Machines, Department of Electrical and Computer Engineering at McGill University, Canada<sup>5</sup>; and the Department of Music, Dance and Drama at the University of Tromsø (with the Department of Documentation Studies)<sup>6</sup>. An additional partner is the R1 Experimental stage at KTH, the royal technical institute in Stockholm, Sweden.

The main goal for this project is to “plan, conduct and evaluate a pilot project for educational collaboration for graduate students in the 4 institutions, who are interested in the field of distributed performance.”<sup>7</sup>

The practical, hands-on part of my study will be participating in, observing, and documenting two workshops on distributed performance which took place during the process of writing this master thesis, in April and May 2011. These workshops are part of the pilot project mentioned above.

---

3 CCRMA, URL: <https://ccrma.stanford.edu/> , retrieved 9 May 2011.

4 Department of Music and Performing Arts Professions, NYU, URL: <http://steinhardt.nyu.edu/music/> , retrieved 9 May 2011.

5 CIM, McGill University, URL: <http://www.cim.mcgill.ca/> , retrieved 9 May 2011.

6 Musikkonservatoriet, det kunstfaglige fakultet, Universitetet i Tromsø, URL: [http://www2.uit.no/ikbViewer/page/ansatte/organisasjon/hjem?p\\_dimension\\_id=88175&p\\_menu=42374&p\\_lang=2](http://www2.uit.no/ikbViewer/page/ansatte/organisasjon/hjem?p_dimension_id=88175&p_menu=42374&p_lang=2) , retrieved 9 May 2011.

7 Application for project funds for North America 2010, to the Norwegian Centre for International Cooperation in Higher Education (URL: <http://www.siu.no/eng> , retrieved 9 May 2011), Appendix 8.



### **1.1.1 Distributed performance**

Trying to understand the terms network performance/distributed performance/multi-site performance, can be a confusing experience. In a way it's not that complicated: two or more performers in separate locations, perform a work together, at the same time. The words are simple enough, network and distribution are terms we're used to hear and respond to, performance equally so. We get in trouble once we try to combine these terms within the same concept.

What does distribution have to do with art? Are we talking about tours, where performers move around and repeat the "same" performance in different locations? Are we talking about events like "Live from The Met", where live performances of opera productions are broadcast around the world and projected to audiences in cinemas? As mentioned above what is *theoretically* meant by distributed performance, isn't very difficult to understand: the concept of two or more performers on two or more locations, yet one performance, all possible because of high speed Internet and advanced software (and hardware). I was introduced to this format through the proposals of the production of the opera "Gilgamesh", as a World Opera project. In this specific production the *distribution* was to be achieved by placing the three "literary" locations in the piece, in three separate, geographical locations in Scandinavia. The idea was that these "remote locations" would be conveyed between the three stages so that the audiences in all locations would experience the same story (but obviously not the same performance).

As in all research project, ambitions and goals are adapted during the process, as we discover needs and limitations. Starting out planning the production of an entire opera, the project lowered pace and immediate ambitions to trials with smaller productions, until the technological challenges are further tamed; the knowledge of the format is increased; and furthering the understanding of what it takes to create a new style of performance art that not only meets the technological requirements, but

also the expectations of artists and not least, the audience.

Network performance has a history that probably is longer than what most people can imagine. Musicians and composers have always been fascinated by musical collaboration over distances.<sup>8</sup> What may very likely be the first event of distributed performance took place in the US in 1891(!).

From the "Boston Evening Record" (1891):

The operator in Providence plays the banjo, the Worcester operator the harmonica, and gently the others sing. Some tune will be started by the players and the other will sing. To appreciate the effect, one must have a transmitter close to his ear. The music will sound as clear as though it were in the same room. The "others" were telephone operators in Fall River, Boston, Springfield, and New York.<sup>9</sup>

Long before the dawn of the internet, composer John Cage created what is being considered one of the first, real distributed performances. In "Imaginary Landscape No. 4 for twelve radios" (1951<sup>10</sup>) radio transistors were used as instruments. These were interconnected and influenced each other accordingly. "Although the levels of interactivity were limited to the dialling of radio-stations, gain and tone-colour, the desire to investigate the possibilities of cross-influence in networked instruments is evident in the piece."<sup>11</sup> This is, of course, far from the distributed performances treated in this thesis, but it illustrates the artistic drive to explore the potential of "new" technology, and new possible formats for artistic expression.

It wasn't until the development of the computer, that a more direct network interaction became plausible, as these can easily transport data from one point to

---

8 Renaud, A. Carôt, A. and Rebelo, P. 'Networked music performance: state of the art' in *AES 30<sup>th</sup> International Conference*, Saariselkä, Finland, 2007, pp. 1.

9 From private correspondence between Mark Schubin and Niels Windfeld Lund. Retrieved 3 February 2011.

10 John Cage database, URL: <http://www.johncage.info/workscage/landscape4.html>, retrieved 9 May 2011.

11 Renaud, A, Carôt, A and Rebelo, P Networked music performance: state of the art in *AES 30<sup>th</sup> International Conference*, Saariselkä, Finland, 2007, pp. 1.

another. "One of the first groups to experiment network practice with computer was The League of Automatic Music Composers in the late seventies."<sup>12</sup> This group (later re-named The Hub) experimented with remote collaboration between the east and west coast of the US. "Due to the limited bandwidth available at the time, the group exchanged messages and not pure audio signals."<sup>13</sup> In Chapter 4 of this thesis, I'll show a time-line of the history of spatially distributed performance.

In his article *The Technophobe and the Madman: An Internet2 Distributed Musical*<sup>14</sup> Robert Rowe presents a short overview of some of the technological challenges met when working with distributed productions: transfer speed over the internet varies from 28.8kbps phone lines, to 100Mbps or more, available on high-speed broadband connections. To transmit only one channel of CD-quality digital audio, we need 705.6kbps, a quick calculation shows without a doubt that the lowest transfer speed is far from sufficient.

Even when a transmission channel with sufficient theoretical bandwidth is used, signals going into and coming out of the link must be buffered to compensate for network congestion between the two machines. Depending on the nature of the signals being sent and the quality of the transmission channel, these buffers may range anywhere from 15 to 3000 milliseconds or more.<sup>15</sup>

One can easily imagine that these potential sources of delay will make it very hard to stay within what is called Ensemble Performance Threshold\* of 20 ms throughput with current internet technology. Questions like these are obviously in the realm of

---

12 Ibid.

13 Ibid.

14 Rowe, R and Rolnick, N *The Technophobe and the Madman: An Internet2 Distributed Musical* in *Proceedings of the 2004 International Computer Music Conference. International Computer Music Association, San Francisco, 2004.*

15 Ibid. pp. 2.

\*the level of delay at which effective real-time musical collaboration shifts from possible to impossible. Schuett, N *The effects of latency on ensemble performance* Online resource, URL: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.153.7795&rep=rep1&type=pdf>, retrieved 9 May 2011.

technology and engineering, but their importance to art is far from irrelevant.

Distributed performances have, as we have seen, already been implemented as a performance format, but what exactly is it that has been done? Are they merely technological experiments, or are they artistic expressions which have their own aesthetic foundation? This is a fairly important aspect of the process I've started because the difference between an experiment for purely scientific purposes and an artistic expression, is quite substantial. Feedback from audiences at such events, suggests that maybe the musical experience isn't the most interesting part of the performance. This is, perhaps, natural when meeting a new, exotic format, but it might be an added challenge to the artistic side of it. There is no doubt that the people working with distributed performance (especially from the artistic side), hold, as their ultimate goal, that this format should be accepted as a valid artistic arena, not as a curiosity, or a "science fair" demonstration of what we can do when only the technology is sufficiently advanced.

*The technological development is necessary and can be seen as a step on the way,  
but the desire to create and convey art must be seen as the final/ultimate purpose.*

An exceedingly important element is that of pre-existing musical forms versus musical forms created specifically for this format. One of the main (artistic) issues of the latency problem, is exactly concerning the attempt to "squeeze" traditional music into a new conveyance format.

## 1.2 Terminology

In this section I describe my understanding and use of certain terms which might not be immediately available to every potential reader. When it comes to terminology, the starting point and main consideration is that, within the field of documentation studies, this is an ongoing debate that will go on for as long as the field is studied. We address this debate in the spirit of Niels Bohr, always striving to find the best terms with which we can speak constructively about a given topic.<sup>16</sup>

Within the documentation studies community, several terms have been used through the years to describe the object and “phenomena”/abstractions we study. Some words are fixed in the terminology, e.g. document, yet their “exact” definitions can still be under debate. Some words are used interchangeably, and “new terms” emerge every time a new study object is found. So, the important thing to remember is to be consistent, and explain why one uses any chosen term and make a point of the importance, difficulty, and constant forward motion, of the terminology debate.

*Documentation, documentation form, document, docemes:* The term documentation (as in Documentation Studies) is a very multifaceted term. The naming of the department of Documentation Studies comes from the Norwegian act of legal deposit<sup>17</sup>, which includes all kinds of documents e.g. digital documents, broadcast television, radio, movies, etc.<sup>18</sup> But this is only a small part of the picture. Before 1968 the term for what is now most commonly known as Library and Information Science, was known as simply Documentation. The word 'documentation' appeared in the early 20<sup>th</sup>

---

16 “Our task is not to penetrate into the essence of things, the meaning of which we don't know anyway, but rather to develop concepts which allow us to talk in a productive way about phenomena in nature.” Pais, A. *Niels Bohr's Times: In Physics, Philosophy and polity*, Oxford, Clarendon, 1991, pp. 446, quoted in Lund, N W 'Document Theory' in *Annual Review of Information Science and Technology*, Vol. 43, 2009, pp. 426.

17 LOV 1989-06-09 nr 32: Lov om avleveringsplikt for allment tilgjengelege dokument, Lovdata, URL: <http://www.lovdata.no/all/hl-19890609-032.html> , retrieved 9 May 2011.

18 Lund, N. W. 'Building a discipline, creating a profession: an essay on the childhood of “Dokvit”' in *A document (Re)turn: contributions from a research field in transition* Peter Lang, Frankfurt am Main, 2007, pp. 12.

century as an alternative to 'bibliography' as a description of the the techniques needed to manage the eruption of published documents, beginning in the late 19<sup>th</sup> century.<sup>19</sup> The word was increasingly accepted as a general term including bibliography, academic information services, record management and archival work. The term 'documentation' suggested an important question in "what can (or can't) be considered a 'document'"? This question was largely left unattended, but one common definition was "any expression of human thought". The documentalists of the time were mainly concerned with printed documents, and thus any question of how far one could extend the definition of 'document' was mostly ignored.<sup>20</sup> One exception was the Belgian, Paul Otlet, perhaps the first to articulate a bibliographic science to attend to all kinds of documents.<sup>21</sup> Michael Buckland paraphrases Otlet's thoughts thus: "Graphic and written records are representations of ideas or of objects, [...] but the *objects themselves* can be regarded as 'documents' if you are informed by observation of them."<sup>22</sup> Otlet is also quoted to have said: "The limitation is based on the morphology of documents and not on their function."<sup>23</sup>

Around 1950 'documentation' was increasingly replaced by 'information science', 'information storage and retrieval' and 'information management'.<sup>24</sup> Out of the group of rather few writers who have concerned themselves with the question about what a document is, there was one who spoke louder than the others. Suzanne Briet worked as librarian and documentalist from 1924 - 1954, and in 1951 she published a manifest concerning the nature of the document; *Que'est-ce que la documenation?* [What is Documentation?]. She kicks off with the statement "a document is a proof in

---

19 Buckland, M 'What is a "Document"?' in *Journal of the American Society for Information Science*, Vol. 48, No. 9, 1997, pp. 804-809.

20 Ibid. pp. 805.

21 Lund, N, 'Omrids af en dokumentationsvidenskab' in *Norsk Tidskrift for Bibliotekforskning*, årg. 4, No. 12, 1999, pp. 24-46.

22 Buckland, M 'What is a "Document"?' in *Journal of the American Society for Information Science*, Vol. 48, No. 9, 1997, pp. 805.

23 Lund, N, 'Omrids af en dokumentationsvidenskab' in *Norsk Tidskrift for Bibliotekforskning*, Vol. 4, No. 12, 1999, pp. 26.

24 Ibid.

support of a fact".<sup>25</sup> She defines a document as "any concrete or symbolic indexical sign [*indice*], preserved or recorded toward the ends of representing, of reconstituting, or of proving a physical or intellectual phenomenon".<sup>26</sup> Added to this historical rationale, is the recent years' (the past 20 years or so) digital development. This has revitalised the need for documentation, and thus the need to study all its various expressions. Which leads us full circle back to the act of legal deposit.

Documentation form can be compared with the term "genre" in literature. This means that a documentation form can be seen as a standard, or tradition for how one creates a document within a specific field.

Niels W. Lund has suggested a general definition of document as "any results of human efforts to tell, instruct, demonstrate, teach or produce a play, in short to document, by using some means in some ways".<sup>27</sup> Another characteristic of a document is that it must be bounded in some way, it must have a discernible beginning and a conceivable end. The term *doceme* has been suggested as analytical concept for the different parts of a document, this is an alternative to using concepts already in existence (such as semiotics). These parts can never be the *doceme* and document at the same time, but can be studied as documents in its own right in a separate context.

*Means, tools; instruments; media:* When we talk about which means are used to make a document, we think about the instruments (instrument), and tools (verktøy, redskap), the media. The term tool implies an artefact, something tangible used to perform a task. This is mainly the way I interpret and use the term, it will function as a sort of sub-category of medium, which is a term I will use and refer to a lot. I will make an attempt at a short description of and definition of the term medium, and explain how I understand it. Bolter and Grusin defines "media" as "the formal,

---

<sup>25</sup> Briet, S, *What is documentation?* Scarecrow Press, Lanham, 2006, pp. 9.

<sup>26</sup> Ibid, pp. 10.

<sup>27</sup> Lund, N. W. 'Document, text and medium: concepts theories and disciplines' in *Journal of Documentation*, Vol. 66, No. 5, 2010, pp. 744.

social, and material network of practices that generates a logic by which additional instances are repeated or remediated, such as photography, film, or television.”<sup>28</sup> From this one can deduct a certain duality to the term “medium”, it's not strictly an artefact, a means. It's defined as a “network of practices”. On the one hand it is the means to manipulate materiality, on the other it also the way one manipulates. Kine A. Johnsen wrote in her 2002 master thesis<sup>29</sup> on digital spaces for research and education, that the medium is situated in the intersection point between the tool (she uses the term instrument), and the way the document is shaped. This duality, this “all-inclusive” definition makes the term pliable, yet makes it difficult to distinguish between “means” and “modes”, which we will see more on later.

*Artistic/stage performance, performance, distributed/multi-site performance:* Artistic stage performance is a term I use to delimit and specify the art form I'm studying for this thesis. My understanding of this term allows for the genres musical, opera, concert, dance performance, theatre, etc. My study focuses on one specific modern distributed musical, one distributed jam session, and two workshops with instrumentation, vocals, and dance, which took place in April and May 2011.

A dictionary definition of performance is, among other meanings: “the action of representing a character in a play”, or “ a public presentation or exhibition”. But performance is infinitely more complex than that: Richard Schechner defined performance in his essay collection “Performance Theory” from 2003:

Performance is an inclusive term. Theater is only one node on a continuum that reaches from the ritualization of animals (including humans) through performances in everyday life – greetings, displays of emotion, family scenes, professional roles, and so on – through to play, sports, theater, dance, ceremonies, rites, and performances of great magnitude.<sup>30</sup>

---

28 Bolter, J. and Grusin, R. *Remediation: Understanding new media* MIT Press, Cambridge MA, 2000, pp. 273.

29 Johnsen, K. A. *Digitale rom for forskning og utdanning: en komparativ analyse*, Master thesis in Documentation Studies, University of Tromsø, 2002.

30 Schechner, R, *Performance Theory* Routledge Classics, London, 2003, pp. xvii, NetLibrary resource, URL: <http://lenkeserv.bibsys.no/lenkeserv/action/serv?id=050002205&bib=c> , retrieved 15 May



Scholars of Performance Studies focus on behaviour, including human behaviour. This, I believe, can be seen as a parallel to the field of Documentation Studies, where scholars study human expression.

Is performance studies a 'field,' an 'area,' a 'discipline'? The sidewinder snake moves across the desert floor by contracting and extending itself in a sideways motion. Wherever this beautiful rattlesnake points, it is not going there. Such (in)direction is characteristic of performance studies. This area/field/discipline often plays at what it is not, tricking those who want to fix it, alarming some, amusing others, astounding a few as it side-winds its way across the deserts of academia.<sup>31</sup>

I find this statement quite fitting for my field of study, it implies the same multidisciplinary approach, and the idea of studying aspects of human activity versus aspects of human expression strikes a similar note. It would be tempting to see what thoughts can emerge if "performance" is exchanged with "documentation" in the statement above, but that is a philosophical exercise for another time. One thing that can be determined concerning performance is its inherent ephemeral quality, and thus the complexity of its analysis.

A general description of the phenomenon I'm studying can be given as performance format, it is a new way to convey art through performance. And this leads us to the perhaps most important challenge when it comes to terminology: which term to choose to define, or describe the performance format studied in this thesis. There are several terms in simultaneous use at this time, seemingly centred around specific research groups. The most common are: distributed performance, used mainly by the music-tech and documentation branch of the Tromsø group; networked performance used by the technology communities at Stanford and McGill; telematic performance mainly used by the composition and performance community at NYU. Another term

---

2011.

31 Schechner, R in *Performance Studies*, Harvard University,  
URL: [http://isites.harvard.edu/fs/docs/icb.topic235750.files/Performance\\_Studies.pdf](http://isites.harvard.edu/fs/docs/icb.topic235750.files/Performance_Studies.pdf) ,  
retrieved 15 May 2011

I've come across without any specific association is multi-site performance. These terms are, as I mentioned, all terms in use, and there is no established consensus on which is the "correct" term. Depending on context I will probably use several of these terms in my thesis, this because I believe they all have qualities worth noticing, and I do not consider it part of the purpose of this thesis to establish any precedence, but I will have to decide on which terms to use. For me it is natural to call it distributed performance because this is the term most commonly used at my educational institution. I cannot claim, however, that I will not use some, or all, of the other terms here mentioned. When speaking about space and stage, for instance, I find it natural to use "multi-site" to emphasise the geographical aspect of performance.

*Complementarity, remediation:* Niels Windfeld Lund of the University of Tromsø, presents document theory as a complementary theory. He states that no matter how much we work on developing concepts, we will never find the ultimate perfect concept capturing the very essence of everything.<sup>32</sup> He is inspired by Danish physicist Niels Bohr's thoughts about complementarity when he suggests complementarity as an approach to study [human interaction via documentation studies]. For instance considering "documentation as complementary to communication" [...] in relation to human interaction as a whole, emphasizing certain aspects of human interaction in general. While communication is biased towards the issue of sharing something among a group of people by the prefix *com-*, documentation may be considered to be biased towards the very act of using some means in a certain way by the two parts *doceo*, I show [...] and *mentum*, by means in some way, resulting in a document.<sup>33</sup> Bernd Frohmann asked in his 2009 article "Revisiting 'What is a document?'" whether we can even think productively about documents and documentation without definitions. And he seemed to conclude that

---

32 Lund, N W 'Document, text and medium: concepts theories and disciplines' in *Journal of Documentation*, Vol. 66, No. 5, 2010, pp. 744.

33 Ibid.

this is an instrumentalist exercise for specific purposes, more than a philosophical one, and that determining definitions should not stand in the way of the study of documents and documentation.<sup>34</sup> This fits nicely with the chosen motto from Niels Bohr: "Our task is not to penetrate into the essence of things, the meaning of which we don't know anyway, but rather to develop concepts which allow us to talk in a productive way about phenomena in nature."<sup>35</sup>

Complementarity, to documentation professionals, means to study an aspect of human expression from different angles to get a better view of the whole picture. This implies a cross-scientific approach, studying aspects of something, using different scientific methods and starting points.\*

Remediation means to appropriate the techniques, forms, and social significance of other media and attempts to rival or refashion them in the name of the real.<sup>36</sup>

### **1.3 Focus questions**

The research articles and material I've read is, to a large extent, concerned with technological difficulties/challenges of distributed performance: which are the needs; and how to minimize the challenges met. The main topics seem to be latency, noise/disruption, bandwidth, data capacity, etc. It's probably not so odd that these topics are so heavily represented in the scientific articles on the subject, the technical aspect of production and potential technological difficulties. The artistic result would be the performance itself. But in my opinion, the lack of documentation regarding the

---

34 Frohmann, B 'Revisiting "What is a document?"' in *Journal of Documentation*, Vol. 65, No. 2, 2009, pp. 291.

35 Pais, A. *Niels Bohr's Times: In Physics, Philosophy and polity*, Oxford, Clarendon, 1991, pp. 446, quoted in Lund, N W 'Document Theory' in *Annual Review of Information Science and Technology*, Vol. 43, 2009, pp. 426.

\* See more on complementarity in chapter 2.

36 Bolter, J and Grusin, R *Remediation: Understanding new media* MIT Press, Cambridge MA, 2000, pp. 65.

artistic possibilities (and limitations) inherent in this format, is a disadvantage to the field. In this section I will point out some particular fields of interest, or focus questions (not all expressed as questions) which make part of my purpose with this thesis.

*When is it necessary to create something beyond ones own body?* Human beings have throughout history evolved in such a way as to make us dependant on “artificial” things to survive. We can't survive outside a few tropical areas, without covering ourselves with isolating materials; we have no natural, integral weapons of attack or defence, and we have to create artificial weapons for this purpose. Our best, and principal, means of survival, is our large and relatively well developed brain.

*When is it “necessary” to create something beyond what is strictly required to survive?* Human beings have also evolved to the point where we feel a need for things that aren't strictly necessary for our survival. We began to develop a taste for things that apparently served no practical purpose, objects and artefacts which were created to satisfy a need that in no way is obvious. The earliest signs of this that we can still find traces of, are pictorial expressions in the form of paintings and carving, the oldest ones in stone, and then later in bone and wood. One can say that human beings have created, for themselves, a need (an artificial such) for objects, phenomena, and similar, which have no direct influence on our survival, but which are still experienced and thought of as so important to our existence, that they can't be excluded. This artificial “need” can be said to be a need for documentation, and the old rock and wood carvings can be interpreted as the earliest forms of documentation we have. This early documenting society has evolved into a society that cannot function without documentation.

*Which (kinds of) documents are needed for any given activity?* One can say that the documents needed in any given activity, primarily are the documents that make the activity possible. We cannot, for example, read, unless we have something to read, whether it's text on paper, screen or even audio form. In turn I would suggest that documents which facilitate a given activity are necessary. If the access to a certain kind of document makes the performance of an activity easier, and the realization is better, it has a necessary position in relation to the activity.

When is the document necessary in an artistic process? In the artistic process it can be difficult to define what is necessary. First of all one can say that any finished (or ongoing) work of art, is its own document. This means that any work of art, in theory, should be a primary document, and perhaps this is the ideal of art. However, the immediate problem with this assumption is that there are few works of art which exist independently of other documents: drafts, sketches, various versions, and in turn one is left with a (sometimes comprehensive) document complex where one individual document will be designated the final, actual document. In some cases there will exist a need for auxiliary documents in an artistic process. For instance in the composition process of a traditional musical piece, there are several prerequisites: for one we have to be able to read and write musical notation, these we have to learn using already existing notation/scores, i.e. documents.

*What is implied in the format of a document?* Which consequences does the format have on communication value, or the experience of a document? I believe that the study of the format of any given document can yield interesting information about the impact, quality, value, and “satisficing<sup>\*</sup>” elements of a document, as well as

---

\* Satisficing was coined by H. A. Simon as an alternative to optimisation, it implies that we work towards what is good enough instead of striving towards an optimal solution that might be unreachable.

information about its main users and “managers”. Looking at, for instance, the written and/or printed text, possibly the most stable format yet, and its stability through history tells us much about its functionality. But it could also hint at other questions. Why is it so popular? What makes it so functional, so superior to everything else we've tried? Without going into the history of paper and the written word, there are a few obvious points we can mention: after the technique is learnt, paper is easy to make; it is easy to use; it is easy to distribute; it has a comparatively long life; and it is easy to manage. To begin with, the modes of using paper. The paper format even holds certain potential for interactivity, the impact reach will understandably be very limited, but it is still a form of interactivity: the surface allows for a vast variety of possible expressions; it's fairly easy to add and change what has been put on it; the format can be shared between several authors (producers); it can be changed by others than the author(s), both in-production and post-production; the autonomy of written text implies a degree of interpretation on the part of the reader; the re-usability of paper is also a strength that should be included in this list. And when electronic word processing was developed, the interactivity improved. However, it was still a very limited form of interactivity, it wasn't until the rise of Internet, that what we now think of as “real” interactivity, became the norm. Anne Mangen wrote recently in an article in the journal *Norsklæreren* (the Norwegian teacher) about format in the context of reading.<sup>37</sup> She laments the absence of attention to aspects such as basic material and physical differences between printed and digital media. She states that the physical, tangible quality of printed text on paper, disappears when text becomes digital, and that this tangibility has consequences for how we read, how we experience what we read, etc. Just the fact that we *have* to interact with digital media, implies a separation of capacity, we use cognitive capacity to perform other tasks than reading, while reading, and have less capacity left for the reading itself.

---

37 Mangen, A 'Lesing - på skjerm eller papir; er det så nøye, da?' in *Norsklæreren*, No. 3, 2010.

*What is the difference between composition for only music, a concert etc. and an opera? (Or, between the traditional patient record and an electronic patient record.)* Composing a single piece of music has traditionally been the work of an individual, and the process is often thought independent of any “outside” considerations, or only relying on one, such as lyrics for a song or the expectation of lyrics. In opera however, the process of composition seems more obviously complex, in that the opera holds several formats within its genre. Through the history of opera the emphasis has been placed on different parts of the productions, such as the libretto, the music, the performance, or the stage design. But each of these parts can only exist in combination, and relation, with the others.<sup>38</sup> The whole cannot exist without the parts, and the parts are (next to) meaningless without the whole. (The exception being arias, which have gained a certain popularity as a genre of it's own.)

*When comparing the artistic and the “mundane” in a document/documentation concept, there must be (some) obvious differences in how one goes about an analysis.* Comparing, for instance, the world of music with the world of patient records, it will immediately be apparent that the way to think about *quality, accuracy* and *results*, is going to be quite different in the two cases. However, the importance of format (medium) in relation to the “quality” of information exchange/transferral can still be relevant.

To try to find answers to this collection, this complex, of focus questions, I will look at two past performances in the distributed format, and one performance that takes/took place during this thesis production process. I will look at the performances of “The Technophobe and the Madman”<sup>39</sup>, “point25”<sup>40</sup>, and a

38 Wilson, A *Opera: A Beginner's Guide* Oneworld Publications, Oxford, 2010.

39 The Technophobe and the Madman, Rensselaer Polytechnic Institute, Academy of Electronic Media, online resource, URL: <http://www.academy.rpi.edu/projects/technophobe/>, retrieved 9 May 2011.

40 Point25, Kungliga Tekniska Högskolan, online resource,

workshop on distributed performance taking place between Tromsø, California, New York and Stockholm, in April 2011.

Attempting to make these different questions come together in a main approach and main aim is not an easy feat. I've decided on an approach and an aim which mutually influence and build on one another. The approach is to study the new form of artwork, the distributed performance, and how the artistic demarcation is implemented in this new spatial format. My main aim with this thesis is examining different aspects of an artistic document in order to discuss what an artistic work is, and how to place it within the context of distributed performance.

#### **1.4 The structure of the thesis**

In the following chapters I will try to present the material in such a way as to make my contribution to the development of a “document model” which can also be considered useful within artistic research, and add to a general “document model as ontology of human expression”.<sup>41</sup>

In chapter 2 I present analytical tools based in documentation studies and conceptualise them within my chosen area of the arts.

Chapter 3 is devoted to the study of the different “complexes” inherent in, and surrounding, the performance as art and document. Art viewed as material, cognitive, and social process, product, etc. How can we, from a documentation studies perspective, understand "art" as document-, producer-, medium-, and user complexes?

In chapter 4 I present the two past performances I'm studying, and implementing

---

URL: <http://www.r1.kth.se/point25/>, retrieved 10 May 2011.

41 Olsen, B I et al. 'Document theory for the design of socio-technical systems: a document model as ontology of human expression', *Journal of Documentation*, 2011, in press.



some analytical tools to demonstrate how an analysis can be used to “extract” general, and specific, information about a performance (or art) as document.

Chapter 5 is concerned with the “real-time” performance that will take/took place at the 26 April 2011 workshop between CCRMA (Stanford, CA), New York University, University of Tromsø, KTH, Stockholm. The final chapter is where I try to connect all the dots and answer the questions posed in the beginning of this process, but also to assess their validity and logic in light of what I have learnt while working on this thesis.

## **2 Documentation studies and the performance**

### **2.1 Method and analytical levels**

Traditionally there exists a thorough, if not strict, separation between the humanities, social-, and natural sciences in education and research institutions. Does this really give a true reflection of the world we live in? There is, as I see it, no real reason why this should be the only correct or necessary division. We live in a world where coherence and interaction make up the foundation of existence, and one can wonder whether the artificial separation of research disciplines is an obstacle when studying objects and phenomena of the world. Complementarity refers to effects such as the wave-particle duality, in which different measurements made on a system reveal it to have either particle-like or wave-like properties. Both properties are necessary to gaining complete knowledge of the phenomena; they are complementary to each other but, at the same time, they also exclude each other.<sup>42</sup>

As mentioned briefly in the terminology section of Chapter 1, Documentation Studies in Tromsø gets much of its theoretical material from Niels Bohr's complementarity. It is the foundation for much debate and interpretation. Roswitha Skare challenges the idea of mutual exclusiveness in her article *Complementarity – a concept for document analysis?*, and suggests another understanding of the term, namely “completeness of description”.<sup>43</sup> She shows through an analysis of the physical aspects of a novel, that we cannot completely avoid social and mental aspects while analysing a physical document. The description and analysis of the obviously material aspects cannot proceed completely detached from mental and social aspects, since all of us view a particular book with our experiences and expectations, just as we do any other document, and we make associations before and during the analysis.<sup>44</sup>

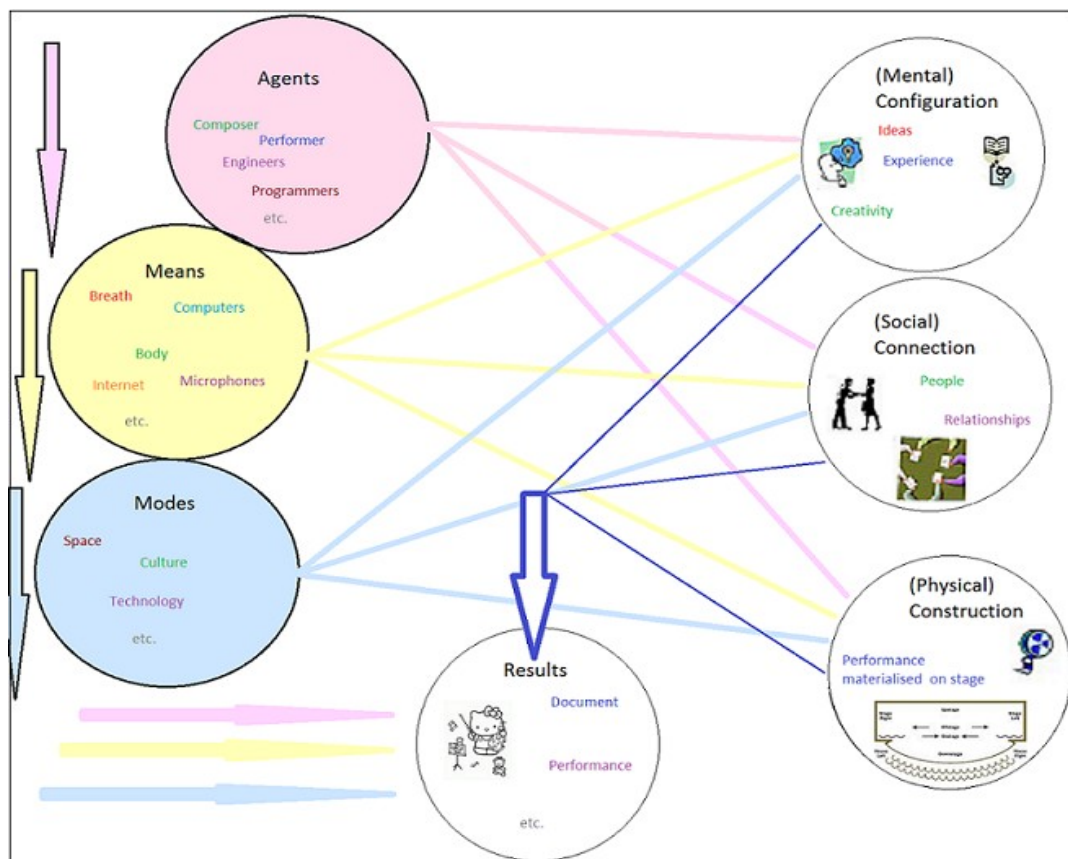
---

42 Skare, R 'Complementarity: a concept possible to achieve in document analysis?' in *Journal of Documentation*, Vol. 65, Iss. 5, 2009, pp. 834.

43 Ibid. pp. 840.

44 Ibid. pp. 836.

In a recent article Niels W. Lund also suggests that instead of thinking of complementary elements as mutually exclusive, they can be considered as “biased”, i.e. tending towards one view instead of another.<sup>45</sup> This concept can be helpful because it allows us to consider the same thing from different angles and thus opens for a broader, more “complete” understanding of we study object. This corresponds with Skare's “completeness of description”. Complementarity gets a specific meaning in document analysis, where we analyse concrete elements of document production (on the left in illustration below); and the more abstract elements (on the right). These elements constitute distinct yet, at times overlapping elements which are all essential to understanding the world of documents.



45 Lund, N W 'Document, text and medium: concepts theories and disciplines' in *Journal of Documentation*, Vol. 66, No. 5, 2010, pp. 744.

### **2.1.2 Agent and role (human – individual/collective)**

The first, and basic, “component” in any documentation (or re-mediation) process, is the active human agent or agents.<sup>46</sup> Depending on which process we analyse, we look for the producer or the reproducer of the document. There can be, and often are, several producers and reproducers creating or recreating the document in a collaborative manner, we can term this 'the producer complex'.<sup>\*</sup> The producers of documents have by definition 'something' they want to document. The interaction between producers is a particularly interesting aspect within the producer complex.

The role of the producer(s) is another interesting aspect, and it must be determined whether it is the individual(s), or the role(s) of the individual(s) that is the main factor, and also what are the motivations for a given production of a document. “If the person is more important than the role, the document tends to be an artistic one – compared to when the role of the agent is the more important.”<sup>47</sup> This statement is quite interesting as I would argue, along with Niels W. Lund<sup>48</sup> that the “artistic role” most certainly exists and is important. It is a social role, clearly individually influenced, but it is also characterised by traditions and expectations. For the documents I study, the *role*, as well as the *intuitive genius* of the producers most definitely matters. The composer must be as much a craftsman as an artist in this context because techniques of composition must be appropriately used and tweaked to make a distributed performance possible. “In addition you can have people, or groups of people with an interest in the system to be designed.”<sup>49</sup> In this context “system” could be exchanged for “performance”, and even though “design” isn't a bad term here, it could also be exchanged for “created”. And these additional people,

---

46 Olsen, B I et al. 'Document theory for the design of socio-technical systems: a document model as ontology of human expression', *Journal of Documentation*, 2011, in press.

\* See more on producer complexes in chapter 3.3

47 Ibid.

48 Lund N W Private correspondence, retrieved 30 March 2011.

49 Olsen, B I et al. 'Document theory for the design of socio-technical systems: a document model as ontology of human expression', *Journal of Documentation*, 2011, in press.

or stakeholders<sup>50</sup>, are all somehow involved in the process, though they might not be exactly producers, they make part of the social connection of the documentation process.

### **2.1.3 Means (*medium*)**

To establish the means in a document model one can ask the simple question: through which means is any given document created? A traditional music score will be created through means of adapted writing implements, ink and paper for instance. A performed song will be created for example, through the means of breath and vocal chords. If it is a distributed performance of a song, the means will be the technical implements along with breath and vocal chords. Computers, internet connections, microphones, speakers, etc.

As I have stated previously in this thesis, my chosen term for *means* is medium. Bolter and Grusin offer a simple definition of *medium* based on their field of remediation: "a medium is that which remediates. It is that which appropriates the techniques, forms, and social significance of other media and attempts to rival or refashion them in the name of the real."<sup>51</sup> They continue to specify that a medium never operates, never can operate, in isolation. They argue that it is inherent in media in our culture today to "enter into relationships of respect or rivalry with other media".<sup>52</sup> In our modern culture a single medium cannot exist without reference to any other means of conveyance. We are used to such an abundance of different, and overlapping, media, that we can hardly imagine a society where the only means of documentation is, for instance, song. And if we really want to nitpick, even song isn't one individual medium without reference. Song depends on the medium of language

---

50 Ibid.

51 Bolter, J and Grusin, R *Remediation: Understanding new media* MIT Press, Cambridge MA, 2000, pp.

65.

52 Ibid.

(to a certain extent), the medium of voice (thus vocal chords and lungs), and the medium of hearing. One can even say that in some cases, song is more mode than means.

Space as medium implies the physical media that creates a spatial dimension in/for the document, we can call this format, yet format is also closely linked to the mode element of the documentation process (more on this in 2.1.3). Jay David Bolter's *Writing Space*<sup>53</sup> offers thoughts on the more "traditional" document (written text) from a space perspective. "Each writing space is a material and visual field, whose properties are determined by a writing technology and the uses to which that technology is put by a culture of readers and writers."<sup>54</sup> I believe this makes as much sense if we replace "writing" with "performance": Each performance space is a material and visual field, whose properties are determined by a performance technology and the uses to which that technology is put by a culture of viewers/audiences and performers. The stage as performance space for instance: it is a material field in the physical structure or construction of the stage space, and it is a visual field because it is the visual focus point of most/all performances. (Can one imagine a stage performance where the focus point is not on the stage? With the follow-up question, what is the stage?)

#### **2.1.4 Mode (tradition)**

To stick with Bolter's space, we can see how he, through his description of writing spaces, connects the elements *means* and *modes*: "A writing space is generated by the interaction of material properties and cultural choices and practices."<sup>55</sup> We see here a very interesting potential interpretation of the means/modes dichotomy (a

---

53 Bolter, J D *Writing Space: computers, hypertext and the remediation of print*, Lawrence Erlbaum Associates, Mahwah, NJ, 2001.

54 Ibid. pp. 12.

55 Ibid.

*performance* space is generated by the interaction of material properties and cultural choices and practices). Space can in itself constitute a format, i.e. a tradition, in that space is a demarcation.

These images, of the sheet of paper as well as of the waves, enable us to emphasise a fact which is of the utmost importance for the future of the semiological analysis: that language is the domain of articulations, and the meaning is above all a cutting-out of shapes. It follows that the future task of semiology is far less to establish lexicons of objects than to rediscover the articulations which men impose on reality; looking into the distant and perhaps ideal future, we might say that semiology and taxonomy, although they are not yet born, are perhaps meant to be merged into a new science, arthrology, namely, the science of apportionment.<sup>56</sup>

Barthes writes here about shapes, but it seems like he might as well speak about space, and the necessity of splitting the physical world up into sections and pieces of limited space. And this fits so well with what Bolter says about generating a writing space (or, in our case, a performance space) through the interaction of material properties and cultural choices. We use the physical space we have available, and through the ideas and visions of, for instance, stage designers or other agents, a performance space is created which possesses both physical and abstract characteristics at the same time. What I'm trying to say here is that the performance space comes about through the interaction of means and modes. And this leads us to the "final" step of the documentation process, the document.

### **2.1.5 Result (document)**

I consider the result "the identifiable products of the documentation".<sup>57</sup> To a certain degree one can say that the result is the conclusion of a process. An artistic

---

<sup>56</sup> Barthes, R *Elements of semiology*, 1964 quoted in Lund, N W 'Document, text and medium: concepts, theories and disciplines' in *Journal of documentation*, Vol. 66. No. 5, 2010, pp. 747.

<sup>57</sup> Olsen, B I et al. 'Document theory for the design of socio-technical systems: a document model as ontology of human expression', *Journal of Documentation*, 2011, in press.

performance is a result of a production process, it is limited in space and time, location x - single- or multi-site, from 6 o'clock until 7 o'clock. Theoretically the same concept as a book or a painting, with the distinction that it "dissolves", so to speak, after 7 o'clock. Through more stable, secondary documents, the performance can be reproduced at another time and/or place. There's also the obvious difference of conveyance, a performance is usually a multi-sensory experience, it is both heard and seen, while a book and painting are mainly read/seen.

Suzanne Briet classifies "documents" into two main categories, the initial, or primary document, and the derived documents.<sup>58</sup> This implies a hierarchy with one document "at the top", and a complex of derived documents (2<sup>nd</sup> degree, 3<sup>rd</sup> degree, 4<sup>th</sup> degree) relating to the *initial* document. But it does not imply a value hierarchy, but is a way to organise documents in relation to one another.\*

#### **2.1.5.1 Temporality**

The temporality of a document is interesting when speaking about performance, specifically for the reason mentioned above. After a given time, the performance "dissolves". In general, people seem to regard documenting as making something *permanent*, or semi-permanent - preserving something [...] for the future."<sup>59</sup> The rather broad definition of the term *document* that I connect to in this thesis, gives that any human who express him or herself, is at some level documenting.<sup>60</sup> This is really what opens up for the possibility to study a performance from a documentalists point of view. And its temporality becomes an interesting aspect due to the elusiveness of its materiality. An example: a recording of a performance isn't the

---

58 Briet, S *What is documentation: English translation of the classic French text*, The Scarecrow Press, Lanham, Maryland, 2006, pp. 11.

\* See more on this in chapter 3.2 on document complexes.

59 Olsen, B I et al. 'Document theory for the design of socio-technical systems: a document model as ontology of human expression', *Journal of Documentation*, 2011, in press.

60 Ibid.



performance, it's a separate document, a secondary document. The document performance has two separate forms of temporality, one is the time the actual performance last; and then we have the more abstract temporality of the performance as product. It only happens once, and when it has happened it is over. An interesting question is whether it no longer is a document when the curtains fall? It is crucial for a document model that both ephemeral and tangible, preservable documents can be and are being managed. Yet, the temporality itself is just a quality of a document, a part of its time-space delineation.

## ***2.2 The performance as document***

Guri Frenning claims in her 2007 MA thesis<sup>61</sup> on the rehearsing of music, that the document term can elaborate the relationship between composer and performer, and work and performance. She explains that one within documentation studies is concerned with studying the actual production of documents, based on the material, cognitive, and social perspectives. This means that one avoids a biased understanding of "document" where important characteristics of the documents are omitted. In her case she looks at musical works as document, while I look at performance as document. What her thoughts highlight, is the complementary aspect of document analysis: try to look at something from all perceivable angles to get the fullest picture possible of its qualities.

### ***2.2.1 The material character of performance***

Olsen et al. characterises the material element of a document or documentation process, the "construction" of the document. "from what and how it is assembled into a physical object and how it 'materializes'. Their example (their article is on

<sup>61</sup> Frenning, G *Innstuderingsprosessen som en dokumentasjons- og erkjennelsesprosess*, Master thesis in Documentation Studies, University of Tromsø, Tromsø, 2007.

socio-technical systems) is digital documents materialising on a computer screen through a device (computer), and “[t]he interface through which we interact with the document is in this way inherent in the document”.<sup>62</sup> The “screen” or interface in my case, would be the/a stage (of some incarnation) In my case one way of describing this same abstraction would be to think of the performance as materialising on a stage (the “interface”), and thus the stage is inherent in the performance-document. The performance is not however, “materialised” only through the stage. It consists of actors performing tasks on a physical “framework”, they materialise the document through the medium of their bodies.

### **2.2.2 The cognitive/mental character of performance**

“The mental part of the document is the perceived document.”<sup>63</sup>

The cognitive character of any given document will to some degree differ between the different people experiencing it. People will usually have different frames of perception and different knowledge paradigms to relate the document to. “Every person will have their own capabilities of grasping the document and the meaning within it, which could be identical to the one that the author intended – or not.”<sup>64</sup> What makes artistic documents particularly interesting considering this aspect, is the fact that the “configuration” of the document is meant to be free, or at least more so than within many other areas. One can argue that there is no way to completely “configure” the document according to the intended receivers, art is to a certain degree about the individual experience and interpretation.

### **2.2.3 The social character of performance – the connection**

The 'social life' of documents can, as can the configuration previously described,

---

<sup>62</sup> Olsen, B I et al. 'Document theory for the design of socio-technical systems: a document model as ontology of human expression', *Journal of Documentation*, 2011, in press.

<sup>63</sup> Ibid.

<sup>64</sup> Ibid.

potentially reveal even more 'new' documents in that we now try to find the social boundaries of the document. However, the social implications of a document might indeed prove very complex and actually quite difficult to figure out, especially in an exhaustive way – in the sense of mapping all possible consequences a document have on and within and between the groups of people who experience the document(s).<sup>65</sup>

Factors which create the social context of a document (a performance) are the people who relate to this document, and the role the document plays in the society or part of society that it acts within.<sup>66</sup> The people who relate to this document are the document producers, the agents involved in the creation of the document; the reproducers, audience, people reviewing or recording the performance, and scholars analysing it.

### ***2.3 One-site performance versus multi-site performance***

As mentioned in chapter 1, the understanding of the term “performance” is very complex, it entails so many aspects of daily life as well as ceremony and the arts. Traditional performance in one location with everyone (agents) and everything (means) in the same place, can be done with very little technological assistance. It is an art form which has changed a lot in some aspects, but in some fundamental ways it has stayed the same for centuries. Content and parts of the medium complex have changed and varied a lot through the ages, but to a large extent performance has been recognisable as precisely that for a very long time.

In the context of the analytical levels and the different elements of documents (performance-documents), it would be interesting to try to determine whether there are any differences between one-site and multi-site performances. When considering the agents, means and modes there are many similarities between the two different performance formats. The main difference is that there are more producers, more

---

65 Ibid.

66 Ibid.

means and more modes; what I mean is that the production process is expanded in that it involves the same elements in higher number. The most interesting thing is perhaps that we get (ideally) more than one performance document out of it, by this I mean that all the networked sites will have separate performances that each is a performance-document, instead of one authoritative performance in one site. This plurality makes it interesting to study the relationships between the unique, yet equal, performances. Multi-site performances open up for new relations and connections that we can't identify yet, be it human-to-human, human-to-medium, or medium-to-medium. An important element to keep in mind is how these relations develop, and also the connection between old and new formats, how the old continues to exist parallel to the new, and what this does to development.

When considering the more abstract aspects of the document, the cognitive, social and physical aspects, I think one can to a certain degree see the same type of change. The complexes are expanding, and so are the relationships between them. From acting in the same room/space, performers and other agents, are situated in parallel spaces on separate sites. Relations to other performers/agents, are mediated, there is no physical presence, no touch, and one can only show, demonstrate by means of movement, speech, song, writing, etc. And, again, through means such as phones and the Internet.

### **2.3.1 Remediation**

My understanding and use of "remediation", is partly based on chapter 3.7 in Silje Miljeteig's master thesis "Remediering og komplementaritet: fra forelesning til webvideo".<sup>67</sup> She writes about remediation in the context of traditional lecture and video lecture, and its consequences for learning. I use her notion of remediation, and

---

<sup>67</sup> Miljeteig, S *Remediering og komplementaritet: fra forelesning til webvideo*, Mater thesis in Documentation Studies, University of Tromsø, Tromsø, 2002.

try to implement them in the context of single-site and multi-site performance. Her understanding of “remediation” seems largely to be based on Bolter and Grusin,<sup>68</sup> who I've referred to earlier.

When a medium is remediated, this leads to a material change from one medium to another. Examples being text in a book, and text on a computer screen; a one-site, traditional performance, and a multi-site, distributed performance. Two very important factors that change in this process, are the aural and the visual factors. The sound and image elements are materially separated in a remediation process and will need a technical connection/link in the remediated form. This is the same for all groups of potential audiences, independently of their location. In an ordinary, single-site performance setting, this link isn't necessary because the event is happening live with both performer and audience on one/the same location. The material change and the change in utility happens in the process. We move from a “one-to-one” situation in the concert hall (or theatre) to the construction of a performance within a semi-virtual, partly Internet-based, environment, or strictly speaking two or more representations of a performance.

Miljeteig writes about “instruction” versus “learning”, and obviously her primary findings aren't directly applicable to my work, yet I find that her approach quite suits my objects as well. For instance in her emphasis of sound as medium, she writes: “As with perception of visual media; moving images, stills, and graphic, our expectations, knowledge and use play a significant role when humans listen to sounds.”<sup>69</sup> When it comes to performance it is obvious that audiences approach it with a certain expectation, a certain prejudice. But what happens when the audience is exposed to a new, unfamiliar performance format, such as a distributed jam session like “point25”? The pre-formed expectations will vary depending on the individuals' knowledge and understanding of the format, but one can assume that

---

68 Bolter, J and Grusin, R *Remediation: Understanding new media* MIT Press, Cambridge MA, 2000.

69 Miljeteig, S *Remediering og komplementaritet: fra forelesning til webvideo* University of Tromsø, 2002, pp. 57 (My translation.)

most people will expect a performance they recognise and understand (according to their personal experience). Remediation in regard to distributed performance means exploring a format made available by technological development, but it also means challenging the established concept of performance in the minds of the users, the audience. But it does not mean that one can expect a multi-site performance “take-over”, remediation is part of a transitional phase where formats exist parallel to each other and create greater diversity in the arts.

#### **2.4 The purpose of considering and analysing performance as document**

In my introductory chapter I stated that my main aim is to study different aspects of an artistic document in order to discuss what an artistic work is. Some will probably say that is a futile exercise because a work of art is whatever the artist/observer/critic *thinks* it is, or perceives/experiences it to be; I believe this to be only partly valid, and only when speaking about the *content* of the artistic work, the immaterial element that leaves its impression on the individual recipient. I see a model where artistic work is synonymous with *artistic document*, it is the concrete result of an artistic process and is in that sense physical. The work documents the making of art and an artist must document her art. “To be identified as such, both work and document must be bounded in one way or another, in time or physical space.”<sup>70</sup>

This is a statement that might seem obvious, but in some cases it isn't. The compositions of John Cage is an appropriate example. One of his best known works is the piece *4'33'*, it is famous because it is *silence*. But it isn't just silence, it is silence strictly bounded by a time frame of four minutes and 33 seconds, and this allows us to identify it as a work, as a document. It is “the quintessence of how time becomes a

---

<sup>70</sup> Lund, N W Private correspondence, retrieved 30 March 2011.

document by emerging in a delimited time-space".<sup>71</sup>

Cage has composed several works which pushed against, and even through the established poetics of music. As mentioned previously, he was one of the pioneers of experimentation with distributed performance. Cage criticised the "work as an autonomous repeatable object, almost independent of its active agents". Cage changed his compositional practice with the stand that every work should be an experiment. He experimented with the work as a *field of opportunity*, and Mia Göran suggests, in her 2009 Ph.D. Dissertation, an interpretation of Cage's experimentation as "finding performative strategies to open up possible rooms/spaces of sensitivity, spaces that weren't available within the surviving traditional work's prevalent practice and discourse".<sup>72</sup> This idea of spaces of sensitivity, I believe, can be very interesting to consider when studying performance, and distributed performance in particular, because it most certainly is a form of experimentation with spaces and sensitivities. Reading about Cage's poetic experimentation is almost like reading about making distributed performance. "Cage's experiments altered the performer's role from being a medium and intermediary of the expression of a work, into becoming a participant in an experiment."<sup>73</sup> Cage opened up for a transformation of the roles of composer and performer. This, as will be shown when looking at the specific performances considered in this thesis, is a very central idea when working with distributed performance.

Our distributed concerts are also bounded in time and in number of sites involved. The point of understanding a concert or performance as a document, is that it always is a piece of bounded use of media to express something with. These boundaries can be vague, but they are there so that the document can be seen, and it doesn't have to be preserved to be identified as a document. It is crucial for a document model that

---

71 Lund, N W Private correspondence, retrieved 10 March 2011

72 Göran, M *Sansningens poetikk: John Cages estetiske praksis*. "a non-knowledge of something that had not yet happened", University of Oslo, Oslo, 2009, pp. 62

73 Ibid.

both ephemeral and tangible, preservable documents can be and are being managed. It's interesting to see how an orchestra work or drama delimits itself, and this leads us back to Aristotle's poetics with a beginning, a middle part and an end, and the plot the holds everything together and thus creates another boundary of the work. Composition can be seen as organised artistic demarcation of sound.<sup>74</sup>

The term "satisficing" can be an interesting term to consider in an artistic context, and in the following I will introduce the topic briefly. To continue with the complementary thoughts of documentations studies: natural sciences, social sciences and humanities. Natural science is usually understood as the knowledge of natural objects and phenomena, and based on Herbert Simon we can imagine there exists a "science of the artificial" - knowledge about artificial objects and phenomena.<sup>75</sup> Simon talks mainly about engineering in the sense of engineering (creating) artificial objects. Engineering seems like a far fetched term in this context, but in a way it makes sense to talk about engineering a performance, it is something that is created according to some plan. An important distinction between a science of the artificial and natural sciences is synthesis versus analysis. The natural sciences have found a way to exclude the normative, and only focus on optimization and how things *are*. Simon asks the question whether we can or should maintain this ideal of optimization when we move from natural towards artificial phenomenon, from analysis to synthesis. One could describe the "knowledge of the artificial" as how to design and create artefacts that have *desired/preferred properties*, where the meaning of design is ways to change *existing* situations into *preferred* situations. Simon describes how one can see the artefact, not in relation to optimization, but as a process: developing → improving → satisficing. In stead of focusing on the optimal, perfect result, the goal is to find solutions that are "good enough".<sup>76</sup>

---

74 Ibid.

75 Simon, H *The Sciences of the Artificial* The MIT Press, Cambridge MA, 1996

76 Ibid.



People express themselves through their tools, whether it is a violin, paintbrush, Powerpoint, etc., and as tools change, artistic output changes. We express ourselves through technology, and, to some extent, the technology allows us to create different forms of expression. For example, until we could record audio (or images on photo plates) we could not edit it. You can't have a flashback in a film if you cannot edit the film. So, non-linearity in narrative development is product of technology. Yes, you have non-linearity in literature and other forms, but today, the flashback is a key element of artistic process. And, what of montage technique, very hard to have a time compressing montage without editing.

We live in a world of ever-evolving technology, one of which is a technology that allows us to see and hear each other over large distances in relatively near-time. This technology is a new tool and people will use it to express themselves or a new idea, as we have always done.<sup>77</sup>

Another very important point to remember in this context, is the factor of intellectual (or in this case, artistic) property, in short copyright. To ensure the rights of the artist, there must be something created that is defined as the “work”. Copyright is so closely linked to the artist as profession, a situation that would be impossible without the rights of artistic property, of ownership of art. Some people create art and some people perform it, both need to create a “document” if they want creation and performance to be their jobs.

---

<sup>77</sup> Geistweidt, J Email received 25 February 2011.

### **3 [Distributed] performance as complex(es)**

#### **3.1 Advancing into the complex**

Performances (and distributed such) can be interpreted as structured complexes whose different elements together make up the performance-document. My study of performance as document-, producer-, and medium complexes is based on literature coming from the department of documentation studies at the university of Tromsø. (Lund, Skare, Olsen et al.) I will also look at the performance in light of what I call the user complexes because I feel this is an element of the distributed performance that is slightly different from the users of a single-site performance.

#### **3.2 [Distributed] performance – document complex**

The artistic production process involves innumerable documents. The documents involved in this process can be regarded as parts within a document complex, and the individual documents can be interpreted/analysed based on where in the process we find them. These documents will usually have different material character, and not all of them will be part of the final "product", the performance, or even be of an artistic character. These "pre-documents" can be anything from notes, sketches, photos, emails, and even conversations. The ephemeral qualities of some of these (e.g. conversation) offers a parallel to our main object of concern, the performance.

As mentioned briefly in chapter 2, Suzanne Briet separates documents into a hierarchical system of initial and derived documents. This system doesn't indicate value, it's only a relational hierarchy separated into *instruction, prospection, diffusion, and organization*.<sup>78</sup> 1<sup>st</sup> degree (Instruction) a) Facts or ideas, b) Objects or artistic creation, c) Persons or activities, d) Sources of facts. 2<sup>nd</sup> degree (Exploration) [Prospection] Sources of documents. 3<sup>rd</sup> degree (Diffusion) Collectively used or individually adapted documents. 4<sup>th</sup> degree (Organization) Documentology.

---

<sup>78</sup> Briet, S *What is documentation: English translation of the classic French text*, The Scarecrow Press, Lanham, Maryland, 2006, pp. 18-19.

| OBJECT                          | <i>"docere"</i> <sup>1</sup> DOCUMENTATION<br>Makes known:                               |  |   |
|---------------------------------|--|--|---|
|                                 | ACTIVITIES   | FORMS  | ORGANIZATIONS<br>(ORGANISMES)   |
| b. Objects or artistic creation | <i>Exhibition</i><br>direct or reproduced<br><br><i>Performances</i><br>live or recorded | Objects.<br>Specimens.<br>Animals.<br>Photos.<br><br>Catalogs–Programs<br>Disks.<br>Cards. | Congresses–Fairs.<br><i>Exhibition</i><br>Committees.<br>A, L, M.<br><br>Concerts.<br>Theaters. |

From this section of Briet's chart\* we even find performance mentioned as an initial document. I find it rather interesting to consider performance in this context because of its particular situation in such a hierarchy. It can be seen as the primary document, from which recordings, and reviews, etc. are derived and parts of a document complex; and at the same time, the preliminary documents existing prior to the performance, can be interpreted as secondary documents to the performance, but they are not derived from the performance. These last can perhaps best be analysed as docemes of the performance-document. This position of the performance in the classic documentation hierarchy gives us a two-level document complex: the pre-performance complex and the post-performance complex. Studying the pre-documents gives us the opportunity to analyse the process of documentation that leads to one main document. Studying the post-documents lets us analyse the documentation of a document (or event), the remediation of a performance, for instance.

The characteristics of a performance document complex vary greatly, as mentioned in the first paragraph of this chapter. There I also mentioned the importance of considering the more ephemeral documents and docemes, and one of that type is especially interesting to me: the rehearsals. The rehearsals of a specific performance share many characteristics with the performance-document in that they are also

---

\* See appendix 1 for further illustration.

volatile and temporary. Rehearsals represent in a (paradoxically) tangible way, the process of the performance production (documentation process), they materialise the progress of production in a way that reports, and meetings, and new drafts can't. Because these preliminary documents (docemes even) exist in the same (or corresponding) format as the performance, they give invaluable information concerning the final "product".

### **3.2.1 The performance document and its docemes**

Using the term document when referring to a performance can seem controversial. But from what I have written in chapter 2, it should be plausible to use the term document in this context, or at the very least, my reasons for doing so should be clear. I specify: a performance is the result of a process where an agent (or a complex of agents) express something with specific means (or complex of means) in specific ways, or according to specific traditions<sup>79</sup>; it is bounded in time and space, by a fairly clear beginning and end, and a more or less clearly defined geographical delineation. This does not mean that a performance *is* a document, I see the document model as a *manner in which* one can study any given object or phenomena. A performance is always and primarily a performance, but in a certain context it can be useful to view it as a document.

In her MA thesis, Guri Frenning writes, among other things, about music as document; she claims that the document (and documentation) terms can help elaborate "the relationship between composer and performer, and work and performance".<sup>80</sup> She is speaking specifically about music, which in our context of distributed performance would be a *doceme* in the performance-document. "It is close

---

79 Lund, N W Document, text and medium: concepts theories and disciplines in *Journal of Documentation*, Vol. 66, No. 5, 2010. pp. 744.

80 Frenning, G *Innstuderingsprosessen som en dokumentasjons- og erkjennelsesprosess*, Universitetet I Tromsø, Tromsø, 2007, pp. 88. (My translation.)

to the concept of the document and relates to the same basic Latin verb and suffix as document, 'docere' and 'mentum'".<sup>81</sup> So which are the docemes that together make up the performance?

To begin with one can mention the "traditional" elements which make up part of the performance. The script, for instance, is a doceme that manifests itself in different ways in a theatrical performance: it is a direct, "active" element in that it is the "spoken" element of the performance (one could possibly claim that the score would function in more or less the same way in a strictly musical performance), and it can be seen as an indirect doceme in that the actual, physical script isn't a part of the performance, a vocal *remediation* of it is. The script is a doceme of the document performance because within the context of the performance, the script has no independent role, within this context it is nothing without the performance. You will remember that previously in this chapter I wrote about the script as a document in the *document complex* that is the performance. These two ways of speaking about the script offers an illustration of two separate levels of analysis: one macro-level, where we study the documents of a large complex; and one micro-level, where we study the different elements (docemes) of a single document.

Another part of the performance that can be seen as a doceme, is the *stage* (which, incidentally, can also be divided up into parts similarly to documents and docemes, I will however, not get into that subject here). On "its own" the stage can be seen as a medium through which the agent(s) express themselves, but it is "only" a part of the medium complex. As a doceme in the performance-document the stage provides a physical backdrop for the performance, it restricts the performance space. This doceme is studied in more detail in chapter 3.4 on media complexes.

---

81 Lund, N W Building a discipline, creating a profession: an essay on the childhood of "Dokvit" in *A document (Re)turn: contributions from a research field in transition* Peter Lang, Frankfurt am Main, 2007, pp. 23

### **3.3 [Distributed] performance – producer complexes**

Everything created necessarily has a creator, but this creator is rarely one individual. Within many art forms, we're used to considering only one creator, *the artist*. This is an individual whom we ascribe almost divine power over the work. Yet this idea is almost always incorrect. Even within “lonely” art forms such as painting and sculpturing, we'll almost certainly find more than one person involved in the creation process. Inspiration often springs from social interaction, a human model can be used, thematic art is usually based on something already existing. Pure, individual, uninfluenced art is very rare.

Stage performances will always have more than one producers. Productions of a certain size are complex processes that really can't be made and conveyed by one individual. One thing is considering the composer(s), playwright(s), directors, performers, etc., these are the people who are visibly and obviously active agents in a performance production. But there are also all the people involved in the “background”. For instance those who design and build the stage, both traditional stages and experimental, abstract stages, are a crucial element without which no performance could be realized. This group also includes costume designers, make-up people, etc.

This is particularly true for distributed performance. How do we categorize the people who write the software needed to transmit the information we need transmitted? Or the engineers who construct the hardware, the various people providing and maintaining the large bandwidth needed? Differentiating between producer and non-producer can be challenging in most document complexes. And in distributed performance this gets an added level of complication. Communication, Internet, software, hardware, all the stuff that needs to be functioning for the performance to even happen. The point is to focus on media, not on (all) producers of such media. Yet, these producers must not be completely forgotten.

A document complex, and the documents it consists of, are a result of a process. Different people are involved in different parts of this process, and they have different influence on the documents. Thus, the producer complex consists on the one side of all those who have influenced the creation of the document complex, and also of those who actually created the documents in the document complex. An analysis is only limited by expediency, and depending on which part of the document complex or documentation process one wants to highlight or study, the degree of specificity varies.

### **3.3.1 The performer as producer**

In his 1998 article on music as process and/or product, Nicholas Cook opens with quotes and anecdotes that in an interesting way fits within a key aspect of distributed performance, that is to say the performer. Schoenberg\* supposedly said something to the effect of “The performer [...], for all his intolerable arrogance, is totally unnecessary except as his interpretations make the music understandable to an audience unfortunate enough not to be able to read it in print.”<sup>82</sup> He also mentions Stravinsky's *music philosophy*: “[t]he secret of perfection lies above all in [the performer's] consciousness of the law imposed on him by the work he is performing” which implies that music shouldn't be interpreted, only executed.<sup>83</sup> He goes on saying that the common idea of performance as, basically, a reproduction, and thus an inferior, if not redundant, activity, lies inherent in our language: we can “only play”, but we can't “only perform”, we have to perform something. From this we can conclude that language makes the process inferior to the resulting “product”.<sup>84</sup> Cook writes about music, but in my opinion most of what he says can be used in relation to

---

\* Arnold Schoenberg was an Austrian-American composer considered to be one of the pioneers within atonal and serial music.

82 Cook, N. Between Process and Product: Music and/as Performance. *The Online Journal of the Society for Music Theory*, vol. 7, no. 2, 2001. pp.1

83 Ibid.

84 Ibid. pp. 2

performance in general. A performer basically holds the same role, no matter what he or she performs. With respect to distributed performance, Cook's ingress (which contains statements he argues against in the article) is particularly interesting because the role of the performer can be said to be essential to the existence of the performance work itself.

The nineteenth-century origins of the discipline lie in an emulation of the status and methods of philology and literary scholarship, as a result of which the study of musical texts came to be modelled on the study of literary ones. In effect, and however implausibly, we are led to think of music as we might think of poetry, as a cultural practice centered on the silent contemplation of the written text, with performance (like public poetry reading) acting as a kind of supplement.<sup>85</sup>

Goehr distinguishes between 'the perfect performance of music' (the approach that 'takes the 'of' seriously' as she puts it), and 'the perfect musical performance' that "celebrates the 'lower' world of the human, the ephemeral, and the active."<sup>86</sup> Cook's focus on the performer is visible also in other publications than the above mentioned article. He has also authored *Music: A Very Short Introduction* and writes even here about music in light of the relationship between composer and performer.<sup>87</sup>

In chapter 2.4, I wrote about John Cage and his compositional experiments, and how these "altered the performer's role from being a medium and intermediary of the expression of a work, into becoming a participant in an experiment."<sup>88</sup> One of his achievements with this experimentation was transforming the roles of composer and performer, from a sort of master/pupil relationship, to a more equal yet separate relationship of what we can call co-producers, or equal interaction in a producer complex.

---

85 Ibid. pp. 4

86 Ibid.

87 Cook, N *Music: A Very Short Introduction* Oxford University Press, Oxford, 1998.

88 Gøran, M *Sansningens poetikk: John Cages estetiske praksis . "a non-knowledge of something that had not yet happened"*, University of Oslo, Oslo, 2009, pp. 62



### **3.4 [*Distributed*] performance – media complexes**

The media complex of a performance can be vast, and the possibilities for analysis only depend on how detailed we choose to be. Media presence makes some possibilities available and exclude others, in that they influence what material we use to make documents and how we can make them. Media will always define our actions in a documentation process because of this inherent limitation of each medium.

In the process of creating a distributed performance there are two important phases with separate media requirements (although there will always be overlapping): the preparation phase and the implementation phase. Common for the processes of both phases is the presence of and dependence on the internet. For distributed (or *networked*) performances, the internet is the most central and unvarying medium. Because of its distributed nature parts of the producer complex will necessarily be located at different sites, this lays the basis for communication, i.e. a lot of it happens across the Internet. This is illustrated in chapter 5.2 on the planning process of the multi-site performance workshop. Considering the implementation phase of a distributed performance, internet isn't just a tool, it is a prerequisite of the format. Multi-site performance is defined by its being distributed between different sites over high speed internet connections. To use the internet we need some form of interface, a computer and specific software. Perhaps, in this case, the internet, computer and software can be considered inseparable parts of one medium (however, as with docemes, the parts can be studied separately).

### **3.4.1 Space**

The performance takes place in a real space that is (usually) a stage, which is made out of tangible materials and covers a given area that can be defined in mathematical terms and represented graphically. However, this same stage also conjures up a fictitious space in which the events represented take place. Moreover, it is at the same time a symbolic space: the visual expression of the potentially conflicting inventions, intentions, and interpretations of the librettist, the composer, the singers, the stage designer, and so on.<sup>89</sup>

This quote is specifically concerning opera, but I believe the thoughts here can be appropriately transferred to most performances. I believe one can claim that staging has been a very important part of performance for a very long time. And it is becoming more and more important. An example that springs to mind is the way young adults “listen” to music now; they don't just listen they watch. They find music videos on Youtube and make local playlists and so on. (In a way it resembles the MTV era, (before MTV started mainly broadcasting reality TV) with the important difference: now people chose their own music videos.) Music is becoming an audio-visual experience and the “staging” of songs comes to the forefront.

What is in the physical space that surrounds, and is part of, the performance? The performance space is an obvious, yet oddly subtle element of a performance. Subtle in the way that its aim is to become “invisible”, it is meant to create a “virtual reality” for the viewers.

---

89 Ferrero, M V 'Stage and Set' in L Bianconi & G Pestelli (red.), *Opera on stage*, The University of Chicago Press, Chicago, 2002, pp. 1



*Illustration 1: Stage/Space - Photo from Flesh and media: an interactive salon, 23 April 2011, UC Berkeley.*

“At this interactive event, audience members will have an opportunity to engage with Active Space technology, which allows live performers to influence and interact with technical elements in a direct, immediate way.”  
 (Event-URL: <http://www.happenstand.com/sanfrancisco/events/5952-flesh-and-media-an-interactive-salon>, retrieved 15 May 2011)

From the quote that opened this section we get a hint that the *stage* area can be interpreted as a medium in a documentation sense, and it is also an important element in the cognitive character of the performance. I re-quote from a previous chapter: “The mental part of the document is the perceived document.”<sup>90</sup> In my opinion this becomes very apparent when speaking of performance as document as the visual perception of the performance is so crucial, not only to the audience, but also to the performers.

What happens to the physical space and the staging in a distributed performance? In the envisioned production of *Gilgamesh* there were some quite clear ideas on staging

---

<sup>90</sup> Olsen, B I et al. 'Document theory for the design of socio-technical systems: a document model as ontology of human expression', *Journal of Documentation*, 2011, in press.

and the (quite grandiose) wishes for the visual part of the production. I use it as an example of the possibilities that distribution in performance give. The idea was to distribute the performance over three sites, corresponding to the three geographical locations in the story of *Gilgamesh*. All three sites would have audiences present, and the ambition was to ensure “equivalent” performances or audience experiences on all sites, but obviously not the same performance/experience. Both the performances of *TTAM* and *point25* had audiences in each location. In *point25* the audience was a deliberate part of “the study”, while *TTAM* was more of an artistic performance for art's sake as far as the audience was concerned. Robert Rowe, one of the composers behind the piece, said that his impression after the performance was that some of the viewers didn't even realise that it was a multi-site performance. This can be said to be a good example of staging that becomes so intertwined with the story that the material aspects of it disappears. For the workshop in April, the audience presence is limited to KTH. Obviously there were people observing on all sites, but the “audience role” is delegated to Stockholm.

Another element of space is the concept of “action space”, another adoption from John Cage, in the context of a distributed stage. Action space can be defined as the physical or abstract area in which an individual moves and makes her decisions. I would say this includes all aspects of an individual's behaviour and how one relates to ones surroundings. Göran writes that Cage approached the traditional musical action space, challenging musicians as acting subjects. He used the action space of the traditional work as a basis, but organised sounds and “action situation” differently. He removed the terms of action which had given the traditional musicians direction and meaning for their sound actions. This was also a way of bringing attention to basic philosophical and existential questions of the comprehension of identity and creation of the subject.<sup>91</sup> An interesting observation in this context is that in the distributed format a performance is not just the art of the

---

91 Göran, M *Sansningens poetikk: John Cages estetiske praksis* . “a non-knowledge of something that had not yet happened”, University of Oslo, Oslo, 2009, pp. 2.

movements of a physical body, but a body projected on a screen, we can say it is moving over into the art of film.

I believe I can see potential concurrence between Cage's challenge of the understanding of identity and the creation of the subject and the virtual stage space in distributed performance. When considering distributed performance, it is the format of performance that has changed, not necessarily the compositional method or tradition. But I believe that Cage's challenges to his musicians can be compared to the challenges performers meet with the distributed format, and that studying Cage can be an approach to understanding some of the trials connected with the development of multi-site performances.

One way of seeing the aspect of space, when we move from one-site to multi-site performance, is a shift from 2-dimensional space to 3-dimensional space. On a one-site stage there is also a distance between the conductor and the percussionist at the back of the orchestra.<sup>92</sup> So the distance between musician in Tromsø and singer at Stanford is in principle only a difference in degree with respect to the distance within the concert stage. With the addition, however, of being transmitted over the Internet, and this is perhaps the largest difference. This creates a mediated social relation, performers are forced to learn a new form of on-stage communication.

---

92 Olmos, A et al 'Exploring the Role of Latency and Orchestra Placement on the Networked Performance of a Distributed Opera'. *12<sup>th</sup> Annual International Workshop on Presence*, Los Angeles, 2009. URL: <http://www.cim.mcgill.ca/sre/publications/>, retrieved 15 May 2011.

### **3.5 [Distributed] performance – user complexes**

What can we say about the user of a performance (as document)? I would argue that the main “user” of a performance, is the audience. But that can be said to be the audience as one “unit”, and the individual people the audience consists of. So this user complex consists of individual users who experience and interpret the performance according to their previous experiences and expectations. Other possible users in this network could be potential sponsors, theatre or music critics, and also researchers are included in this group. The user complex of a performance can also be specified further, depending on the intentions the producers. There are performances meant for very specific user groups: educational performance works, works which more or less aim at a certain social group, performances for children, etc. This is only limited by the choices of the producers.

An interesting question considering the users of a performance work, is whether they are a prerequisite for the performance. Would a performance be a performance if there was no audience to experience it, no critics to review it, persons to be educated by it?

## ***4 History of distributed performances***

In this chapter I will be briefly introducing the two **past** performances I've chosen as study objects, and give a quick overview of the development of distributed performance through history. I'll review the two performance projects and the pieces, and attempt to implement the analytical tools I've presented in the previous chapters.

### **4.1 Milestones in Real-Time Networked Media 1966-1998**

My intention when including this time-line is simply to illustrate the modern history of the network performance. I stop at 1998 because at this time high-speed Internet makes networked collaborations much more available, consequently there is a large increase in projects and performances. My first case, the performance of "The Technophobe and the Madman", took place in 2001. The second performance I'm looking at took place in 2004, and the third study object, the workshops took place in 2011.

1966 - Public Supply, Max Neuhaus: The goal was to combine radio station with telephone network to create two-way public aural space.

1975 - The Performing Arts & the Future of Television, Mark Schubin: The goal was to achieve a remote masters class of ballet; dancers and dance master in separate locations.

1975-1977 - Satellite Arts Project, Kit Galloway and Sherrie Rabinowitz: Several distributed performing artists appear and perform together in the same live image; able to see and talk with each other.

1977 - The Last Nine Minutes, Douglas Davis: Used satellite feeds to create multi-site video art performances.

1980 - Hole in Space, Kit Galloway and Sherrie Rabinowitz: Experimented with satellite video link for a variety of artistic projects.

1981 - Canadian Coastlines: Canonical Fractals for Musicians and Computer Band, Larry Austin: Mixed live/pre-recorded distributed radio performance.

1983 - Digicon 83: Night Satellite, Jean Piché; Osamu Shoji; Martin Wesley-Smith: Multi-site audio performance between Vancouver, Tokyo and Sydney, linked by satellite. 300Msec delay.

1985 - The HUB, Bischoff; Brown; Perkis; Stone; Trayle; Gresham-Lancaster: Network based electro-acoustic performance. Specially made instruments.

1988 - Satellite Symphony, Françoise Legrand: Attempted (more or less successfully) to combine singers from around the world with World Philharmonic Orchestra, to perform Ode to Joy, live, before a television audience. 1Sec satellite delay.

1993 - Distributed Music: A Foray into Networked Performance, Eve Schooler et al.: Demonstrate network "Flow Synchronization Protocol" (developed at BBN) to combine data for one-way streaming. The group created and synchronised three real-time streams of music from different Internet hosts. Around 200Msec delays.

1996 - Cyber Soirée, Paul Hoffert: Demonstrate ATM-based technology for audio and video streaming of a four-way jazz performance. More than 0.5Sec delays, but performers learnt to compensate through extensive practice.

1996 - Distributed Musical Rehearsal Environment, Dimitri Konstantas et al.: Support distributed rehearsal tasks with conductor at different location from musicians. 80Msec one-way delay, later, 31Msec one-way delay achieved. 160Msec echo made performance confusing for singers.



1998 – Winter Olympics Opening Ceremony, Seiji Osawa: Conducted choruses on five continents. Time lag adjuster used to eliminate satellite delay, and all network events were timed to the orchestra.

In the earliest forms of distributed performance, lag and delay was probably not a very important aspect because these performances were of a very different character than modern Internet distributed performances. They are clearly a precursor for the types of telematic interactive performance projects we see now, but they were based on different technological conditions and thus met with different challenges. What the overview above illustrates is the will to explore the phenomenon, and the desire to use technology to create art. A little before, and definitely with, the coming of the Internet, one of the recurring challenges of spatially distributed performance has been time lag and delay. With the development of high-speed Internet and faster connections, delays have decreased drastically. Take for instance “Digicon 83: Night Satellite” from 1983, a multi-site audio performance via satellite link. They experienced a 300Msec delay, compared to more current experiments where we can get audio latency down to approximately 20Msec.<sup>93</sup> What seems to me to be a quite common attempt at a solution to this technological obstacle, is to approach the format through more or less improvisational art. This is very interesting, and makes a lot of sense, because it allows artists and researchers to test and experiment with the format without having to deal with very strict artistic expectations and limitations.

“Cage's experiments altered the performer's role from being a medium and intermediary of the expression of a work, into becoming a participant in an experiment.”<sup>94</sup> Cage opened up for a transformation of the roles of composer and

---

93 Cooperstock, J. *History of Spatially Distributed Performance*, McGill University, URL: <http://www.cim.mcgill.ca/sre/projects/rtnm/history.html>, retrieved 15 May 2011

94 Gøran, M *Sansningens poetikk: John Cages estetiske praksis . “a non-knowledge of something that had not yet happened”*, University of Oslo, Oslo, 2009, pp. 2.

performer. This, as will be shown when looking at the specific performances considered in this thesis, is a very central idea when working with distributed performance.

#### **4.2 The Technophobe and the Madman**

The musical was created as a collaboration between the institutions New York University and Rensselaer Polytechnic Institute in Troy, New York. The idea was conceived through the joint efforts of three composers (Nick Didkovsky, Neil Rolnick and Robert Rowe); a video artist (Don Ritter); two writers (Tyrone Henderson and Quimetta Perle); and a theatre /stage director (Valeria Vasilevski). It originated as a collaborative work particularly developed for “simultaneous performance at two sites connected by an Internet2 communications link”, thus being the first Internet2 distributed musical.<sup>95</sup> The expressed purpose of the production was to examine the artistic consequences of composing music for the internet2 medium.



*Illustration 2: Still from the performance of TTAM where we see the Madman and Alma.*

---

<sup>95</sup> Rowe, R og Rolnick, N, 'The Technophobe and the Madman: An Internet2 Distributed Musical', *Proceedings of the 2004 International Computer Music Conference*, International Computer Music Association, San Francisco, 2004.

The piece consists of song, monologues and music. There are three “verbal” characters in the piece: the Technophobe, her avatar Alma, and the Madman. The plot is set around the Technophobe reflecting on her past and laments her creation of Alma, or maybe of Alma's creation of her. The characters do not directly interact with each other, but they respond to each other in a manner that implies a relationship, but it is never fully explained. But this particular aspect of it, the disconnectedness and dissociated atmosphere, is a good thematic connection between form and content.\*

The artistic element of the performance seems to be left after the curtains fall, but the technological aspects of the production and performance are thoroughly covered in the article “The Technophobe and the Madman: An Internet2 Distributed Musical». <sup>96</sup> In the months before the final performance, there were several trials and tests between the two sites. Repeated encounters with the realities of distributed performance had a deep impact on the play as it evolved.

An important aspect of this production is its background: the piece is developed specifically for performance via a technological innovation. This hints at a key problem for this new medium, the question of whether it is possible, or recommendable, to “force” traditional pieces into this new performance format.

There were three composers who worked on *The Technophobe and the Madman*: Neil Rolnick, Nick Didkovsky, and Robert Rowe. There were also different approaches to the different sections of the piece, some resulting in more notated scores, and others just sets of general instructions. [They] did have a "score" [they] worked from, a ring binder with all of the scenes in them, that everyone followed through the performance. <sup>97</sup>

---

\* See appendix 2 for a peek at the script. A recording of the performance can be found at URL: <http://www.academy.rpi.edu/projects/technophobe/performance/performance.html> , retrieved 9 May 2011.

96 Ibid.

97 Rowe, R Personal correspondence, retrieved 12 January 2011.

“The reception was very positive, and actually the performance was so smooth that it's quite likely that not everyone in the audience realized that half of it was coming from another location.” There was a review in the New York Times, as well as other press, that was positive about the technical advances as well as the music. Artistically the production team was quite happy with the piece, there was a sense that they had made something that worked in performance and made a compelling and dramatic musical experience, “transcending the science fair aspect of it that, particularly back in 2001, certainly had the potential to overwhelm the whole thing”.<sup>98</sup>

#### **4.2.1 The complexes**

As I wrote in chapter 3, analysing a performance from a “complex” perspective, the analytical level is determined by functionality. In the case of “The Technophobe and the Madman”, I believe it makes sense to consider the complexes in an “expanded” sense, in that one considers also the “background” elements of the complexes. Perhaps particularly for this specific performance, which was in a way, first of its kind, I believe it is important to consider all elements in as broad a sense as possible.

“The Technophobe and the Madman” document complex consists of “pre-documents” such as the script vocal performance and the scores and play instructions for music; the technological aspect with its variety of documents, such as the software for audio and video transmitting; stage plans and instructions; and the derived documents (post-performance documents), remediations, such as articles written with a basis in the performance (project), reviews, and recordings of the performance.

The producer complex of “The Technophobe and the Madman”, consists of one group of fairly thoroughly described agents, and the more obscure background agents who do not take direct part in the performance, but all the same have been an

---

<sup>98</sup> Ibid.

undeniably crucial part of the process. The “public” agents have been documented in the presentations and reviews of, and articles, about the play. This group includes the directors, the choreographer, the musicians, and not the least, the performers. In chapter 3.3.1 I wrote about John Cage's role in opening up for a new understanding of the composer/performer relationship, and Nicholas Cook's thoughts on the same subject. My impression, from working with “The Technophobe and the Madman”, is that this is very well illustrated here, through the process of creating the performance, where a certain degree of improvisation was implied in the composition, and the piece was created in collaboration.

As I wrote in chapter 3.4 There are two important phases with separate media requirements in the process of creating a distributed performance. These phases are identified as the preparation and implementation phases, with the Internet as a common and indispensable medium. In “The Technophobe and the Madman” an Internet2 connection was used over several months to rehearse and perform the piece. The Internet being a very important medium, it isn't the only one. I write quite a bit about space as medium in chapter 3.4.1, and space is an important medium for this performance. I find Robert Rowe's statement about his impression of people's experience quite interesting in the context of space: “the performance was so smooth that it's quite likely that not everyone in the audience realized that half of it was coming from another location”. Here it seems that through the medium of the Internet, audio-visual equipment, specific software and hardware, the physical space of the local stage, the producers were able to create a virtual space of the *performance*, which is what the audience experienced.

The user complex of a performance, as mentioned previously, includes but is not limited to the audience. Who makes up the user complex can obviously vary greatly, and this category can sometimes perhaps overlap with the producer complex. By this I mean that in some cases, such as “The Technophobe and the Madman”, which is a research project as well as an artistic production, the same individuals found in the

producer complex can be found in the user complex. A specific example is Mr. Robert Rowe. He was one of the composers for the musical, but also a music technology researcher, publishing material based on the performance.

### **4.3 – point 25**

The performance *point25* of the “Connected Performance Spaces” emerged from several projects and activities related to the Wallenberg Global Learning Network<sup>99</sup>, which merged with the “High Performance Learning Spaces”<sup>100</sup>. The HPLS' focus was on “highlighting the ways in which teaching and technology interact”.<sup>101</sup> The aim of the project was to create “an event with both audiences and performers in two locations”, from here it evolved into a concert/jam session with two musicians and audiences in both locations. The locations were the KTH\* Learning Lab in Stockholm, Sweden, and Wallenberg Hall at Stanford University, California, USA. The name of the concert event “became 'point25' taking notice of the delay in signals that was approximately 0.25 seconds”.<sup>102</sup>

The event was set up in a certain way to “prime” the audiences for the experience, and the spectators “were guided through dark tunnels into the performance area”. Here they found two screens, showing films of, among other things jellyfish, spacewalks and the Earth seen from space. There was another screen next to the seats, which displayed the audience in the other location. The project team noted that the audiences soon started to communicate with each other through the screen.

---

99 Wallenberg Global Learning Network, URL: <http://www.wgln.org/> , retrieved 9 May 2011

100 Wallenberg Global Learning Network, High Performance Learning Spaces, URL: <http://wallenberg.stanford.edu/research/findings/HPLS/index.html> , retrieved 9 May 2011 -

“The idea of creating advanced resource classrooms for experimental purposes on Stanford’s campus dates back at least to early 1998. In a proposal to the Knut and Alice Wallenberg Foundation in Sweden, the co-directors of the Stanford Learning Lab highlighted the need for advanced 'spaces for learning'.”

101 Point 25 - report, Kungliga Tekniska Högskolan,

URL: <http://www.r1.kth.se/point25/point25.pdf> , retrieved 15 May 2011

\* The Royal Institute of Technology, Kungliga Tekniska Högskolan, Sweden.

102 Ibid.



*Illustration 3: Still of the audience(s) at the event "point25".*

After a short while the onlookers could see that something was happening on stage, “four characters appear as silhouettes on one of the screens, their physical location not very clear”.<sup>103</sup> After this two of the musicians appear physically on stage, and two remain on the “virtual stage”, in both locations. The musicians, and the audiences, are separated by the Atlantic ocean. The concert consisted of a partly improvised jam session and the musicians were: Chris Chafe (celletto) and Roberto Morales (flute) in California, and Hogne Moe (flute) and Øyvind Berg grand piano) in Stockholm.



*Illustration 4: Still of the musicians of "point25"*

---

103 Ibid.

The production team realised early in the project period that they could not avoid the delay in the transmission between Sweden and the USA. This was acknowledged, and the proposed solution was to “have some sort of a 'conductor' to set a slow almost floating pace”.<sup>104</sup> Filmmaker Kristine Samuelson created several films that were used as backdrop for the performance, and also functioned as a conductor for the musicians.

Engineering students in Media Technology following a course in Presence Production at KTH were instrumental in initial testing of the physical setups and testing. The weekly video mediated staff meetings not only let us discuss ideas but also enabled us to try out different equipment and logical setups. The acceptance among the project staff of the setups and ideas became a way of finding the “right” setup. At the same time making the perfect setup can prohibit serendipitous discoveries and therefore many things were left un-designed and open for discussion.<sup>105</sup>

#### ***4.3.1 Elements of the performance***

Due to the differences between the performances, my approach to studying “point25” is slightly different from that of my study of the “Technophobe” performance. Instead of straight off starting with the complexes presented in Chapter 3, I believe there's reason to try to identify some elements of “point25” which differ from the “Technophobe”. Artistically there is one main thing that separates them, and that is degree of improvisational approach. The first piece is a composed musical which opens up for improvisation where needed, the second is an improvisational piece with a form of conducting element to aid musicians with pace. This brings us to a very central element of the “point25” performance, the film that functions as backdrop and more importantly, a form of conductor, for the performers. In the performance-document it has several different functions: It constitutes part of the

---

104 Ibid.

105 Ibid.



visual aspect of the performance, and can thus be considered a docume of the performance. This would include the film in the document complex of “point25”. The films function as conductor is very interesting to consider, because in a substitute manner, it makes part of the producer complex. Another interesting observation here is the film's potential score-like nature. One can imagine it would be possible, and possibly interesting to consider it a form of semi-live composition, not unlike Soundpainting developed by Walter Thompson.\* This experimentation with roles and representation is a very good example of what possibilities the parameters of the distributed format actually opens up for. And this is, in my opinion, a very good reason to continue the exploration and development of the art form.

When it comes to the specific complexes, there are some fairly obvious differences between the two performances. There's no script for “point25” as it is an instrumental performance, and no regular score due to the piece's improvisational nature. Thus the “pre-documents” of this performance range from sketched ideas, stage plans, communications, technology documents, and so on. As mentioned in the presentation of the “point 25” project, the intention, or focus of the project was to focus on “the ways in which teaching and technology interact”. With this purpose in mind, one can imagine that the pre-documentation of the process that led to the performance, the plans of the project, was quite extensive. The post-performance document complex includes the project's web site.<sup>106</sup> On this site we find a project report, a published article based on the performance project, a conference presentation, and a film version of the performance, edited from recording from both sites.

Considering the producer complex, there isn't anything particular that distinguishes

---

\* Soundpainting is a composition/conduction language created and developed by New York composer Walter Thompson for instrumentalists, dancers, actors, poets and visual artists who work within structured improvisation. Currently it consists of more than 750 gestures.  
URL: <http://www.soundpainting.com/> , retrieved 15 May 2011.

106 Point25 - a global multimedia concert, Kungliga Tekniska Högskolan, URL: <http://www.r1.kth.se/point25/> , retrieved 15 May 2011.

the two performances. As with the document complex there's the absence of score/script, and thus of the traditional composer/author.

When we get to the media complex of the performance, and particularly the aspect of space (the other physical media are quite similar to the "Technophobe" performance), it gets rather interesting. This element is quite closely tied to the that of the user complex. "The project team noted that the audiences soon started to communicate with each other through the screen." The geographical separation is made a point of, there is no attempt to conceal the fact that there is an unusual spatial element to the performance. This is emphasized again as the performance begins: "four characters appear as silhouettes on one of the screens, their physical location not very clear". This is quite contrary to what was said of the "Technophobe", where the illusion of one performance space was, at least to some degree, accomplished. This is worth an extra notice because it tells us something about the importance of space in the distributed performance, and also about the possibilities there are to explore the phenomenon of space in this hybrid format.

## ***5 Collaborative workshop: Development of graduate studies on networked performance***

Participants: University of Tromsø (UiT), New York University (NYU), Center for Computer Research in Music and Acoustics at Stanford University (CCRMA), Royal Technical Institute in Stockholm (KTH).

The basis of the workshop were four interconnected sites, with performers on three sites and audience on one site. Three composition students, one on each location, prepared a short piece for the workshop. Then musicians at the different sites played together over the network. There was an audience present at one site. The workshop didn't go entirely as planned in that the New York site didn't participate in the workshop 26 May. However, a secondary workshop was set up for 11 May between New York, Tromsø and KTH in Stockholm. I will sketch out the background for this project and the following workshops, and based on the communication between the participating institutions, and then describe the planning process of the primary workshop which also includes New York and thus the piece rehearsed and performed for the secondary workshop. I will then write a short report based on my observations of the primary workshop from CCRMA, and a brief comment on the secondary from Tromsø.

### ***5.1 Background***

The workshop originates from a seminar on Teaching Distributed Performance held in Tromsø 15-16 November 2010, and is a part of the educational project on network performance which this thesis project is a part of. At this seminar the participants agreed, on behalf of their institutions, to collaborate on a networked workshop for distributed performance (UiT/World Opera, CCRMA, NYU, McGill, and KTH). One important factor in this project was funding from the Norwegian Centre for

International Cooperation in Higher Education<sup>107</sup>, which would allow participants to travel from Norway to North America or vice versa. (This is also the reason I had the opportunity to go to California and participate in the workshop from CCRMA.) I will briefly sum up the original ideas agreed on at the seminar: The objective was set as “student groups, spanning Tromsø, Stockholm, NYU, McGill, CCRMA perform a distributed scale (may involve musicians, dancers, other?) for a potentially distributed audience”, with a potential time frame including “intensive interaction between student groups week of Feb. 28, and a distributed performance March 5 at 19:00 GMT+1. The technology decided on at the time was JackTrip\* for audio and AccessGrid (with modifications) for video.\* Potential learning outcome was suggested: challenges of deadline achievement involving multiple distributed interacting components at different time zones; achieving an artistically aesthetic/coherent performance; awareness and understanding of the impact of latency on distributed performance; appreciation of differences (challenges/opportunities) with respect to single-site performance; providing an experience of a network performance to an audience (both physical and distributed); manipulation of AV signals to enhance shared presence; gain familiarity with tools; collaboration across network; archiving and documentation of creation and execution of a distributed performance; positioning their work in the context of historical distributed/telematic performances.

After a setback, partly due to busy schedules and the difficulty of recruiting participants on some sites, derailed topics got back on track. The original plan wasn't specifically used, but the new one was still quite faithful to the ideas. The time frame

---

107 The Norwegian Centre for International Cooperation in Higher Education,  
URL: <http://www.siu.no/eng> , retrieved 15 May 2011.

\* JackTrip is a Linux and Mac OS X-based system used for multi-machine network performance over the Internet. It supports any number of channels (as many as the computer/network can handle) of bidirectional, high quality, uncompressed audio signal steaming.

URL: <https://ccrma.stanford.edu/groups/soundwire/software/jacktrip/> , retrieved 9 May 2011.

\* AccessGrid is an ensemble of resources including multimedia large-format displays, presentation and interactive environments, and interfaces to Grid middleware and to visualization environments. URL: <http://www.accessgrid.org/> , retrieved 9 May 2011.

shrunk for the new project, but in the end it is more important to get something done, even if one can't do exactly what was planned. The new idea was to get one student from each "site" institution to compose a short piece for networked performance, with instrumentation complying with what would be available at the different sites and adequate technology and create a performance.

## **5.2 Planning process**

The following section is a condensed summary of the communications sent back and forth between the involved parties during the planning period in the weeks before the workshop.<sup>108</sup>

Following a successful video and audio connection between CCRMA and Tromsø on 16 March 2011, Niels Lund suggested an aim for a three site collaboration between CCRMA, NYU and Tromsø in late April. At this time Jeremy Cooperstock\* and Thomas Beyer\* were asked to suggest how their students would/could be involved with the project. Lund also announces the instrumentation available at the Tromsø site (saxophone, percussion, dance, electronics) and requests feedback from the other sites (CCRMA and NYU). He concludes this first communication by suggesting a seminar a month after the workshop, to conclude the work. A reply from NYU (Beyer) said that there would be students from the current and previous (music technology) class acting as technicians and crew, these would also be responsible for all testing and documentation.

Lund replies with questions on whether it would be possible to get composition students to write 5-10 minute pieces for distributed performance, and have them ready by late April; how many sites should be connected and what equipment to use

---

108 Thomas L. Beyer, Chris Chafe, Jeremy Cooperstock, Geir Davidsen, Jason Geistweidt, Niels W.

Lund and Robert Rowe. Common correspondence retrieved between 11 March and 26 April 2011.

\* McGill University, Montreal.

\* New York University.

(Jacktrip and Ultravideo); and how schedule problems should be dealt with. At this stage the involved parties are beginning to present the project to potential participants at the institutions and suggestions for how the remaining institutions (McGill and KTH) can contribute/be a part of the project. KTH (Handberg) replies that they can contribute with an audience and, if they use their experimental performance space (the reactor hall), they can also contribute 8 seconds reverb to the aural element of the compositions. At KTH there are media technology students who are interested in working with the audience aspects, possibly with a focus on the collective mediated audience experience, and the mediated audience to performer feedback.



*Illustration 5: The KTH Experimental space, an old reactor hall.*

By the end of March the workshop date is set and composition students were recruited, at Stanford a composition student, Ben-Zhen (the only female participant from the California site), was recruited to write a 5 minutes piece, and they also expected to have both performers and technicians available in time for the workshop. In Tromsø, a music technology student was recruited, Kurage Ohhashi, he would write an open ended 5 minutes piece, inspired by birds in Tromsø, and it was meant

to be open for any instrumentation. Also, in Tromsø, they expected a relative large number, 5-10, of musicians available for the workshop.

KTH's contribution is agreed upon as receiving all audio from the performing sites into the reactor hall in Stockholm and then back again to the other sites with the 8 seconds reverb. The KTH team asked for some info regarding the performance spaces on the other sites, because they wanted to do a sort of an audience survey. They wanted to know about size of performance spaces and floor plans, including entrances, where performers would be located, both physically and mediated.

Jason Geistweidt post doc researcher with Verdione at University of Tromsø was in charge of the Norwegian site. Geistweidt suggested there are many different approaches to a projects such as this workshop, but that the format of a one-day workshop implies limited time and limited resources. He feels there is a need to create events, or compositions which are certain to work, and in particular, which emphasises the kind of interactivity which can be achieved over the given network connections. He then goes on to make some suggestions he believes are important to keep in mind for all the participants of the project.

There is no way to know in advance who exactly will turn up for the workshop and rehearse and play the compositions. Instrumentation is unknown, there might be no conformity whatsoever between the instrumentation at the different sites, and this is important to keep in mind when composing for the workshop. Also it is important to plan for unexpected situations, such as one site not connecting for some reason (which actually happened). It is also important to remember that the workshop is an educational exercise and that it is an advantage to have as many people on board as possible. The bottom-line is that the composers need to create something that everyone and anyone can play, open instrumentation is a key factor.

Timing is an ever-present issue in distributed performance, and is especially tricky if no one has had the experience of playing over a network. This means that the

conductor guiding the action is going to arrive at all the sites at different times, and significantly behind the audio. Audio and video synchronisation is difficult if we are trying to push the data as fast as possible (this is due to video being slow to process for network transmission). He suggests that the composers write in a style where synchronisation is not so important, proposing they focus on a modular style where there are groupings notes or phrases that are repeated over and over, and each site plays these sections and proceeds forward to a different section following cues from a conductor at one site. The same difficulties are relevant for rhythm, synchronised rhythm is hard to pull off over a network transmission, but, he says, a composer can be quite creative with density of activity, harmony (pitches), and tessitura (low/middle/high range).

If there was more time available, there would be possibilities for choosing musicians and extensive rehearsals, there is no time for that, neither is it the aim of the workshop to provide that. It is an educational project and a test. What each composers must work around is an organised 5-6 minute event. The composer guides the music-making, continuously asking what to do and how to make it interesting. Geistweidt suggests some tools like sites getting their cues aurally from another, and that how the sites are connected also is important to the composition. He reminds everyone that a piece will not sound, or be seen, or experienced in the same way at all sites. *Each site is part of the whole and yet, still unique.*<sup>109</sup>

The next thing to iron out before the workshop, was technical details like networks and firewalls, configurations and set-up. The nature of the event planned was a workshop, and that it should include rehearsal and and performance, it was decided that there would be no need for a pre-rehearsal.

During the planning process the workshop “event” was named a concert, and this seemingly led to some confusion regarding the audience presence. Audience

---

109 Geistweidt, J. Common correspondence retrieved 30 and 31 March 2011.



experience would be a very interesting element of distributed performance, but not at the forefront of this specific workshop which was put together within an educational project. A questionnaire had also been prepared to try to collect some data from the workshop.\* This data was not collected in time for me to see and consider for this thesis.

### 5.2.1 The pieces

During the first two weeks of April the compositions were introduced to the group. Three composers from three different sites had been given the task of composing the pieces that were to be used in the workshop. Kurage Ohhashi and Jason Geistweidt in Tromsø, Ben-Zhen Sung in California, and Cheng-I Wang in New York. They were just drafts that still needed some more work and tweaking. The Tromsø piece is inspired by spring in Tromsø and its ever present seagulls.\*

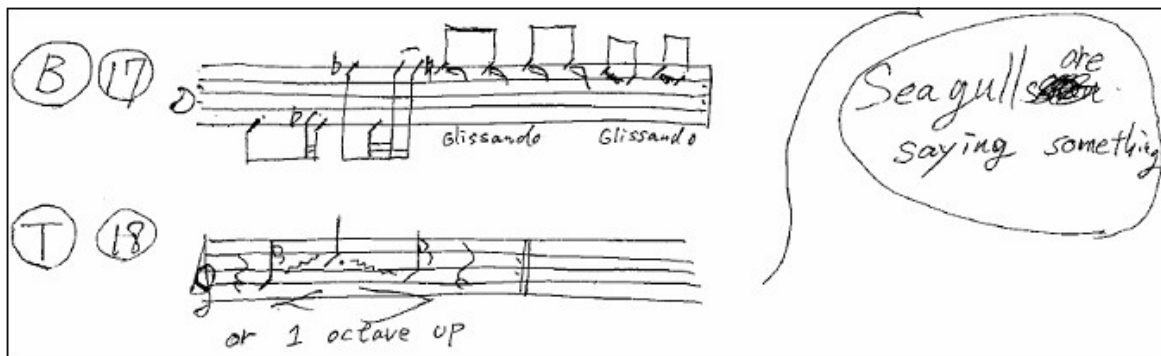


Illustration 6: Early sketch of the Tromsø composition.

Ben-Zhen introduced her draft explaining her inspiration as “moving air/wind/caverns. I wanted to play with the idea of echos [sic], echoing, sounds being passed around from place to place (literally!).”<sup>110</sup>

\* See appendix 3 for questionnaire.

\* See appendix 4 for full score.

110 Sung, B-Z Common correspondence retrieved 8 March 2011

Here's an excerpt of her composition\*:

**Structure**

Section 1:

Piano strings and cello scratching

Breathing and whistling

Section 2:

Instrumental improvisation and shouting, random yet coordinated

Section 3:

Breathing, shouting - fade out

Cello scratching and piano strings

Fade out

Mid-April the compositions from all three sites (Tromsø, California, New York) were more or less completed: "Now we have had a successful test in Chris's class with Ben-Zhen getting all of us breathing, shouting and playing, sounds promising for the April 26th workshop."<sup>111</sup> And in Tromsø the composer Kurage Ohhashi had also finished his composition, and was, in collaboration with Jason Geistweidt, figuring out how to present it (i.e. score, instructions, etc.). Cheng-I Wang\* at NYU described his composition thus:

A 3-4 minute dance piece accompanied by live piano playing. One cycle of movement takes about 50-60 seconds. The dance starts with the dancer at NYU. The dancers at the other sites join in when the movement repeats. The dancer at the second site comes in with the

---

\* See appendix 5 for full instruction.

111 Lund, N W Common correspondence retrieved 12 April 2011

\* See appendix 6 and 7 for score and dance instructions.

first repetition of movement while the dancer at the third site joins in on the second repetition. The dancers do not have to be in unison but should be dancing with a minimal delay. More importantly the dancer should be moving to the music s/he is hearing from the live piano player at his/her site. The concept behind the musical composition is that of exploring the timbre of piano with basic harmony series. There is no exact alignment between the notes being played and the movements of the dancers. The music is separated into sequences that correlate to the dance phrases. During the performance the pianist will have to decide when to move to the next sequence. The pianist will make this decision through his/her own intuition. The tempo and dynamics of the music should vary with the dancer's movements. The pianist starts playing when the dancer at his/her site begins to move. The overall tempo of the piece should follow what is played at the first site (NYU), but expressive timing is allowed and encouraged.<sup>112</sup>

The workshop was fast approaching, and the compositions came together, descriptions and explanations were distributed among the workshop participants.

In the Cage tradition it is a timed piece which will need either a unified clock 'camera' (we are considering using a large clock in Stockholm) or each site might need a time keeper. Let's see what happens. It has an open instrumentation, so just play it in the most comfortable octave available (one or two players to a line). The point is to not necessarily be precisely together, but to allow the work to flow through many stages. Listening, reacting, etc. On the KTH side, Kurage has provided field recordings to resonate in Reactor Hall which we hope provides inspiration for mimicking the seagulls of Tromsø, which in the 24 hour sunlight never shut up.<sup>113</sup>

An interesting aspect of the compositions for the workshop, was the diversity in compositions and notation/instruction between the sites. In California, Ben-Zhen has provided a piece which is completely verbal, with loose key indications at one point; Kurage's piece can be considered traditionally notated, yet the piece is not particularly traditional; Cheng-I provided a traditional score for the piano, a notated dance structure, and reference videos for the dance section. \*

---

112 Wang, C-I Common correspondence retrieved 13 April 2011

113 Geistweidt, J. Private correspondence retrieved 25 April 2011.

\* Reference videos can be found on Youtube.com, URL: <http://www.youtube.com/watch?>

The compositions for this workshop might seem like they are floating in a vacuum of a not yet established compositional form, they are created for what is essentially an experimental combination of the opportunities of technology and art. But they are in fact part of a tradition, a branch on the evolutionary tree of composition. Umberto Eco wrote in his 1989 book "The Open Work", about instrumental composition where a degree of autonomy is left to the performer. "Thus, he is not merely free to interpret the composer's instructions following his own discretion (which in fact happens in traditional music), but he must impose his judgement on the form of the piece[...] all this amounts to an act of improvised creation."<sup>114</sup> Eco talks about the difference between traditional composition and the new "open form" composition, and describes the "closed" process of traditional composition as an assemblage of sound units arranged in a closed manner. "He converted his idea into conventional symbols which more or less oblige the eventual performer to reproduce the format devised by the composer himself".<sup>115</sup> He goes on to say that the new composition form rejects the definitive, and multiply the possibilities. This is obviously an extremely condensed version of what Eco means, and this exploration of art and artistic formats existed long before the 1980's, but he articulates a specific difference. The compositions for the distributed performance workshop were composed within a tradition where a basic structure is explored with various means, suitable for the experimental art form.

---

[v=jldyczDv5k&feature=player\\_embedded](http://www.youtube.com/watch?v=jldyczDv5k&feature=player_embedded) and URL: [http://www.youtube.com/watch?v=n\\_G\\_y-cGY44&feature=player\\_embedded](http://www.youtube.com/watch?v=n_G_y-cGY44&feature=player_embedded) , retrieved 15 May 2011.

114 Eco, U *The Open Work*, Harvard University Press, Cambridge, MA., 1989, pp. 1.

115 Ibid, pp. 3.

### **5.3 *The workshop***

Tech set-up in California started at 9:30. Set-up done and connections between CCRMA, Tromsø and KTH up and running around 10:30. Due to communication issues New York couldn't connect. Having the right equipment at hand, and qualified staff to set it up and run it, is a privilege that obviously makes a workshop easier to carry out. At CCRMA there was one person designated the audio set-up and connection, one person working the video hookup, and others doing various tasks. In Tromsø, one person had to tackle all the technological aspects, and the main organisational tasks of the workshop. This highlights the advantage of skilled and available staff, but also points to the fact that it is possible to do big things good, even when human resources are limited

As can be seen in illustration 6 the students in California clustered around the microphones placed inside the "stage area". The stage area was surrounded by a ring of speakers and in the background one can see the Tromsø and Stockholm locations on screen. The merged sound from all three sites came from the local speakers. The California students attended the workshop as part of a class, and thus the team was operating on a limited time schedule. This could however, be a good approach to such a project, seeing as the workshop is partly intended to help develop an educational program in distributed performance. (Also, it makes recruiting students to participate easier.)



*Illustration 7: Workshop CCRMA Stanford California 26 April 2011. Students clustered around microphones, staff observing, space surrounded by speakers, and in the background, the screen with live video from the Tromsø and Stockholm sites.*

Since New York was not online and the CCRMA students only had a limited time slot available, the workshop started with only two sites plus KTH-reverb. First rehearsal was of Ben-Zhen's piece, beginning with a run-through section by section. First piano string scratching, then individual breathing, then synchronised breathing. Breathing turns into whistling, first in specific keys, then improvised melodies. Section 2, the instrumental part of the piece, was run through with the improvised melodies, then the coordinated shouting of random words and phrases. The echo-effect asked for in the instructions was achieved at times, but the overall effect was entertaining and interesting. The third and last section was a reversed repetition of section one, with breathing beginning as shouting fades out, and the cello and piano concluding it all. The absence of a third site was fairly smoothly surpassed (but it is understandably difficult to determine what could have been). Kurage's piece was run through in much the same way, with a slow rehearsal first, technical and artistic adjustments, and then a final performance. Artistically, the workshop was successful, technologically it was more of a challenge. This is very interesting turn of events when it comes to distributed performance, because the technological aspect has a tendency to take priority over artistic considerations. It's a very good illustration of

the fact the format has a very good potential for art, even though the technology might not be quite “satisficing” , yet.

### ***5.3.1 The second workshop – Tracing a Memory***



The second workshop took place on 11 May, about two weeks after the first. This time the participants were distributed between Tromsø, Stockholm, and New York. This workshop was focused around one piece, Cheng-I's “Tracing a Memory”, a composition and choreography for distributed piano and dance. The workshop showed clearly the advantage of performers participating on the technical set-up when moving a camera led to total breakdown of the network on the Tromsø site. During the down-time, the dancers (in Stockholm and New York) had the opportunity to go through the choreography, and another aspect was highlighted: the importance of communication between the performers performers. This is a communication/documentation challenge, because of the geographical separation more communication must be written, or in other ways mediated over potentially huge distances. The technical situation was eventually sorted out and the pieces were rehearsed and performed, and artistically it was very interesting. And as with the first workshop it becomes clear that there's lots of potential, when only the

technological aspect of the format works as it should.

#### ***5.4 Identifying complexes***

One of the things I've learnt from participating in this process, is how extensive the planning process communication between the participants is, and what large part of the pre-document complex this communication constitutes. I've included a fairly extensive (and possibly exaggerated) record of the communication previous to the Spring 2011 workshops. For obvious reasons this isn't included in the chapter on the performances of "Technophobe" and "point25". In my opinion this communication could have value in analysing such projects and the resulting performances. It is a very basic form of documentation, it is often subjective and personal, not necessarily very systematic, sometimes a source of confusion, but after the fact, it could be very interesting to study these documents for future learning. And I've included a summary of this communication specifically to argue for the importance of the documentation of what comes before the performance. The importance of the specific software and hardware documentation for the analysis of a performance production process is something that can be debated. The technology is obviously very important, in fact it is a prerequisite, but it doesn't really need analysis, it just needs to be present and functioning.



## **6 Coming together**

### **6.1 Focus questions**

In my introductory chapter I wrote a section called “focus questions” which illustrates my ambitions for this thesis. These questions were posed early in the study process and it might be interesting to review them and the frames I made for them, in light of the thesis I have written since then.

The first question was: *When is it necessary to create something beyond ones own body?* This question I framed with the statement that human beings have always made “artificial” things to survive, and that our best means of survival, is our brains. This question belongs to a general category of questions when speaking of art and documentation. Because of human being's unique situation, the creation of “things” beyond the boundaries of our bodies is essential and can perhaps be considered something that defines us. It is part of what makes us human beings. It can be a way of stepping back from a specific documentation activity or artistic endeavour, and question what one is doing and how.

This first opening question was continued with a specifying question: *When is it “necessary” to create something beyond what is strictly required to survive?* This question is, in a way, approaching the artistic sphere (some will always say that art is necessary to survive). To me the idea of creating something beyond what is needed to survive is a philosophical matter. What is survival in the first place? Yet the question is meant very literally, because “what is needed to survive” is no universal entity. I wrote that [t]his artificial “need” can be seen as a need for documentation, and the old rock and wood carvings can be interpreted as the earliest forms of documentation we have. This early documenting society has evolved into a society that cannot function without documentation. So perhaps this “homo documentans” is dependant on documents to survive.

Moving from the necessities of humans to the needs within activities, I formed a sort of hypothesis concerning document need in human activity: *Which (kinds of) documents are needed for any given activity?* One can say that the documents needed in any given activity, primarily are the documents that make the activity possible. We cannot, for example, read, unless we have something to read, whether it's text on paper, screen or even audio form. In turn I would suggest that documents which facilitate a given activity are necessary. If the access to a certain kind of document makes the performance of an activity easier, and the execution is better, it has a necessary position in relation to the activity. According to the main subject of my thesis, artistic documentation, this leads directly to my next question:

*When is the document necessary in an artistic process?* In my introduction I wrote about how difficult it is to define what is necessary in the artistic process, and how a work of art can be defined as a document. Studying the arts and artistic documentation, I wonder if this question perhaps is the wrong question. Or, at least not a very important question. I don't believe art can be made without documentation, without documenting art, so maybe a better question would be which kinds of documents are necessary. This, in the context of distributed performance, is a particularly central issue. The documentation and later reproduction of a distributed performance is a very complicated part of this art form, and so far there is really no obvious solution to it. The problem is how to convey a multi-site performance onto a more stable format for future reproduction and study, after the live performance. A simple, yet not so simple answer is video recording, the problem being how one would convey the plurality and geographical distribution of the performance space. A recording such as the point25 video, is an example of a possible, but not quite satisfactory model, and it will be very interesting to follow this development in the future.

Continuing from the concept of artistic documents, I asked *what is implied in the format of a document? Which consequences does the format have on communication value, or the experience of a document?* I wrote that I believed the study of the format of any

given document could yield interesting information about some qualities of the document, as well as information about its users. I exemplified this by mentioning written text, one of the more stable document formats we know. One can argue that one thing implied in format is limitation, that the purpose of a documentation format is to limit the individual. A specific software gives us the opportunity to perform a task, but only within a certain framework. As one of my unofficial advisers put it: "if you have a hammer, everything looks like a nail".<sup>116</sup> Yet artists create a wide variety of art-documents all the time, continuously challenging these formats and limitations. And this is an important factor that is essentially different in artistic documentation and more mundane documentation forms, e.g. patient records or legal documents. Challenging the established standard and format would seriously jeopardise the validity of and confidence in these documents, while in a way the opposite is true for art-documents. I mentioned Anne Mangen, who researches reading, for my purposes I have chosen to interpret it as *experiencing* rather than strictly *reading*. She writes about a lack of attention to material differences between formats, and the consequences these differences have for peoples' experience of a given text. When reading a text on a computer screen there's a splitting up of brain capacity, some being used for reading, and some being spent on the proprioceptive input such as manoeuvring a computer mouse, or typing at a keyboard. "Just the fact that we *have* to interact with digital media, implies a separation of capacity, we use cognitive capacity to perform other tasks than reading, while reading, and have less capacity left for the reading itself." There are studies which claim that this separation of attention negatively affects our ability to read, to understand and remember what we've read. This says much about the potential of format differences, and I believe it's important to keep this in mind when exploring new formats. Not to slow down or hinder development, but to be ready to work around cognitive challenges like this.

*What is the difference between composition for only music, a concert etc. and an opera? (Or,*

---

116 Geistweidt, J Private correspondence retrieved 15 April 2011

between the traditional patient record and an electronic patient record.) This question and the way I commented on it in the introductory chapter, might seem a little redundant. It's only logical that different areas of society, such as the arts and a local administration office need, use and generate different kinds of documents. And it is likewise logical that a complex musical, or operatic production demands different composition techniques than a simpler instrumental production. It relates both to the previous point of format, and the next of difference in analytical standards. What the difference is, might not be strictly important, but realising there is a difference and taking this into consideration.

*When comparing the artistic and the "mundane" in a document/documentation concept, there must be (some) obvious differences in how one goes about an analysis.* Aligning and comparing the worlds of music and patient records, it will immediately be apparent that the way to think about *quality, accuracy* and *results*, is going to be quite different in the two cases. However, the importance of format (medium) in relation to the "quality" of information exchange/transmission must not be dismissed. Art is also a form of communication, it is very different from that of patient records or legal documents, but that is not say there are not qualitative differences between ways of conveying it.

## **6.2 Telematics and opera**

To return to the origins of my project, I want to say something about telematic performances and opera. One thing is that I started out working with, or parallel to, The World Opera, another is what I see as parallels between the telematic format and the operatic format. I believe that they can be compared in some central ways. The first example is what I choose to call complexity. And by this I don't mean to suggest that other forms of one-site performances are less than complex, but I'm pointing to some basic aspects that might make them more complex than many other formats. As Olmos et al., put it in "Exploring the role of latency and orchestra placement on the networked performance of a distributed opera": While singers and musicians strive to coordinate the timing of musical passages, their interaction is affected by both *internal timing variances* and *external latencies*.<sup>117</sup> Continuing from this notion of complexity, another interesting aspect is comparing early opera and jazz, its "fluidity", its changeable nature, and looking at this in the context of distributed performance. Early opera was a very "improvisational" art form in its early days, and as with jazz in modern times, it was an expectation to have a distinct experience each performance.<sup>118</sup> With telematic performance, this aspect becomes quite immediate. "The performance" is a plural event, there are, ideally, at least two distinct performances that are equal, but never the same. With this I mean that not only will the Monday and the Wednesday performances be different from each other, each of the various representations of the Monday performance, though part of the same unit, will be unique.

---

117 Olmos, A et al 'Exploring the Role of Latency and Orchestra Placement on the Networked Performance of a Distributed Opera'. *12<sup>th</sup> Annual International Workshop on Presence*, Los Angeles, 2009, pp. 1. URL: <http://www.cim.mcgill.ca/sre/publications/> , retrieved 15 May 2011.

118 Lund, N W 'Opera som dokument – essay om hvad dokumentationsvideskab kan bruges til' in *Ikoner*, No. 4, 2007, pp. 37.

### **6.3 Criteria for art**

The philosopher Ludwig Wittgenstein once compared understanding a sentence to understanding a musical theme. He did this in the course of an argument against what he called the 'picture' theory of meaning. By this he meant the idea [...] that language represents an external reality existing independently of language – that language is only a medium, in other words. His point was that, whereas you might plausibly regard a sentence like 'John is hitting Mary' as simply a representation of a fact that in itself has nothing to do with language, you can't think of a musical theme that way: to understand a musical theme is simply to understand that musical theme, not to understand some external reality that the musical theme represents.<sup>119</sup>

To conclude this thesis I will take a look at what I stated to be the aim of my thesis and attempt to gather up and tie together some loose ends, and eventually to try and place my thesis in the context of a larger artistic development project. I set as my main aim to contribute to a discussion on what an artistic work is, particularly within the context of distributed performance. As part of this I believe it is of interest to identify some central criteria for interesting distributed art. Through my study of past distributed performances and participation on multi-site workshops, I have formed some opinions about this. First of all I believe it is very important to keep in mind that this is a new format, and one can't expect to immediately fit traditional forms into it. TV and theatre are not the same, even if they can both portray an audio-visual representation of drama, or comedy. When creating art for this format I believe it is a good idea to keep in mind a certain correspondence between format and content, more because of the exploratory opportunities this allows, than because I believe in conformity and keeping with tradition. I explain: the distributed format opens for a very real, metaphorically tangible, way to explore space, time, separation, social relations, and everything in between. This is no criteria for art, but a possible advantage of the format. Art is about exploring the world physical, metaphorical,

---

119 Cook, N *Music: A Very Short Introduction*, Oxford University Press, Oxford, 1998, pp. 74.

spiritual. "Format" could also be said to be about exploring the world: it is a way of materialising the artistic exploration of the world; the choice of format is a way of exploring the material world.

## 7 Bibliography

- Bolter, Jay D and Grusin Richard, *Remediation: understanding new media* MIT Press, Cambridge MA, 2000.
- Briet, Suzanne, *What is Documentation?* Scarecrow Press, Lanham, 2006.
- Buckland, Michael, 'What is a "Document"?' in *Journal of the American Society for Information Science* Vol. 48, No. 9, 1997.
- Cook, Nicholas, 'Between Process and Product: Music and/as Performance' in *The Online Journal of the Society for Music Theory*, vol. 7, no. 2, 2001.
- Cook, Nicholas, *Music: A Very Short Introduction* Oxford University Press, Oxford, 1998.
- Cooperstock, J. *History of Spatially Distributed Performance*, McGill University, online resource, URL: <http://www.cim.mcgill.ca/sre/projects/rtnm/history.html> , retrieved 15 May 2011.
- Fabbri, Paolo 'Metrical and Formal Organization' in L Bianconi & G Pestelli (red.), *Opera in theory and practice, image and myth*, The University of Chicago Press, Chicago, 2003.
- Ferrero, Mercedes V 'Stage and Set' in L Bianconi & G Pestelli (red.), *Opera on stage*, The University of Chicago Press, Chicago, 2002
- Frenning, Guri *Innstuderingsprosessen som en dokumentasjons- og erkjennelsesprosess*, Master thesis in Documentation Studies, University of Tromsø, Tromsø, 2007.
- Frohmann, Bernd, 'Revisiting "What is a document?"' in *Journal of Documentation*, Vol. 65, No. 2, 2009.
- Gøran, Mia, *Sansningens poetikk: John Cages estetiske praksis - "a non-knowledge of something that had not yet happened"*, Ph.D. dissertation, University of Oslo, Oslo, 2009.
- Jackson, Shannon, *Professing Performance*, Cambridge University Press, Cambridge, 2004.
- Johnsen, Kine A., *Digitale rom for forskning og utdanning: en komparativ analyse* Master thesis in Documentation Studies, University of Tromsø, Tromsø, 2002.



- LOV 1989-06-09 nr 32: Lov om avleveringsplikt for allment tilgjengelege dokument, Lovdata, URL: <http://www.lovdata.no/all/hl-19890609-032.html> , retrieved 9 May 2011.
- Lund, Niels W., 'Building a discipline, creating a profession: an essay on the childhood of "Dokvit"' in *A document (Re)turn: contributions from a research field in transition* Peter Lang, Frankfurt am Main, 2007.
- Lund, Niels W., 'Document, text and medium: concepts theories and disciplines' in *Journal of Documentation*, Vol. 66, No. 5, 2010.
- Lund, Niels W., 'Document Theory' in *Annual Review of Information Science and Technology*, Vol. 43, 2009
- Lund, Niels W., 'Omrids af en dokumentationsvidenskab' in *Norsk Tidsskrift for Bibliotekforskning* Vol. 4 No. 12, 1999.
- Mangen, Anne, 'Lesing - på skjerm eller papir; er det så nøye, da?' in *Norsklæreren*, No. 3, 2010.
- Miljeteig, Silje, *Remediering og komplementaritet: fra forelesning til webvideo*, Master thesis in Documentation Studies, University of Tromsø, Tromsø, 2002.
- Olmos, Adriana et al., 'Exploring the role of latency and orchestra placement on the networked performance of a distributed opera', *12<sup>th</sup> Annual International Workshop on Presence*, Los Angeles, 2009, from URL: <http://www.cim.mcgill.ca/sre/publications/> , retrieved 15 May 2011.
- Olsen, Bernt Ivar et al., 'Document Theory for the Design of Socio-Technical Systems: A document model as ontology of human expression' in *Journal of Documentation*, 2011, in press.
- Point25, Kungliga Tekniska Högskolan, online resource, URL: <http://www.r1.kth.se/point25/> , retrieved 10 May 2011.
- Rowe, Robert, 'Real Time and Unreal Time: Expression in Distributed Performance' in *Journal of New Music Research*, Vol. 34, No. 1, 2005.
- Rowe, Robert og Rolnick, Neil, 'The Technophobe and the Madman: An Internet2 Distributed Musical' in *Proceedings of the 2004 International Computer Music Conference*, International Computer Music Association, San Francisco, 2004.

- Schechner, Richard, in *Performance Studies*, Harvard University, URL:[http://isites.harvard.edu/fs/docs/icb.topic235750.files/Peformance\\_Studies.pdf](http://isites.harvard.edu/fs/docs/icb.topic235750.files/Peformance_Studies.pdf) , retrieved 9 May 2011.
- Schechner, Richard, *Performance Theory* Routledge Classics, London, 2003, pp. xvii, NetLibrary resource, URL: <http://lenkeserv.bibsys.no/lenkeserv/action/serv?id=050002205&bib=c> , retrieved 9 May 2011.
- Schuett, N *The effects of latency on ensemble performance* Online resource, URL:<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.153.7795&rep=rep1&type=pdf>, retrieved 9 May 2011.
- Skare, Roswitha, 'Complementarity: a concept possible to achieve in document analysis?' in *Journal of Documentation*, Vol. 65, Iss. 5, 2009.
- Wilson, Alexandra, *Opera: A Beginner's Guide* Oneworld Publications, Oxford, 2010.

## Online resources:

- AccessGrid, URL: <http://www.accessgrid.org/> , retrieved 9 May 2011.
- JackTrip, URL: <https://ccrma.stanford.edu/groups/soundwire/software/jacktrip/> , retrieved 9 May 2011.
- John Cage database, URL: <http://www.johncage.info/workscage/landscape4.html>, retrieved 9 May 2011.
- McGill University, Centre for Intelligent Machines, URL: <http://www.cim.mcgill.ca/> , retrieved 9 May 2011.
- New York University, Department of Music and Performing Arts Professions, URL: <http://steinhardt.nyu.edu/music/> , retrieved 9 May 2011.
- Norwegian Centre for International Cooperation in Higher Education (URL: <http://www.siu.no/eng> , retrieved 9 May 2011.
- Point 25 - a global multimedia concert, Kungliga Tekniska Högskolan, URL: <http://www.r1.kth.se/point25/>, retrieved 9 May 2011.
- Point 25 - report, Kungliga Tekniska Högskolan, URL: <http://www.r1.kth.se/point25/point25.pdf> , retrieved 9 May 2011.

- Reference videos for “Tracing a Memory”,  
URL: [http://www.youtube.com/watch?v=n\\_G\\_y-cGY44&feature=player\\_embedded](http://www.youtube.com/watch?v=n_G_y-cGY44&feature=player_embedded), retrieved 9 May 2011.  
  
URL: [http://www.youtube.com/watch?v=jJdyczDv5k&feature=player\\_embedded](http://www.youtube.com/watch?v=jJdyczDv5k&feature=player_embedded), retrieved 9 May 2011.
- Stanford University, Center for Computer Research in Music and Acoustics (CCRMA), URL: <https://ccrma.stanford.edu/>, retrieved 9 May 2011.
- Soundpainting – the art of live composition,  
URL: <http://www.soundpainting.com/>, retrieved 9 May 2011.
- The Technophobe and the Madman, Rensselaer Polytechnic Institute, Academy of Electronic Media, URL: <http://www.academy.rpi.edu/projects/technophobe/>, retrieved 9 May 2011.
- The Technophobe and the Madman: video, Rensselaer Polytechnic Institute, Academy of Electronic Media,  
URL: <http://www.academy.rpi.edu/projects/technophobe/performance/performance.html>, retrieved 15 May 2011.
- Wallenberg Global Learning Network, URL: <http://www.wgln.org/>, retrieved 9 May 2011.
- Wallenberg Global Learning Network, High Performance Learning Spaces, URL: <http://wallenberg.stanford.edu/research/findings/HPLS/index.html>, retrieved 9 May 2011.
- The World Opera,  
URL: [http://www.theworldopera.org/?page\\_id=2](http://www.theworldopera.org/?page_id=2), retrieved 9 May 2011.
- Universitetet i Tromsø, Musikkonservatoriet, det kunstfaglige fakultet, URL: [http://www2.uit.no/ikbViewer/page/ansatte/organisasjon/hjem?p\\_dimension\\_id=88175&p\\_menu=42374&p\\_lang=2](http://www2.uit.no/ikbViewer/page/ansatte/organisasjon/hjem?p_dimension_id=88175&p_menu=42374&p_lang=2), retrieved 9 May 2011.

## 8 Appendices

### Appendix 1

| OBJECT                          | "docere" <sup>1</sup> DOCUMENTATION<br>Makes known:         |   |  |
|---------------------------------|---|---|--|
|                                 | ACTIVITIES  | FORMS   | ORGANIZATIONS<br>(ORGANISMES)  |
| <b>1st degree (Instruction)</b> |   |   |  |
| a. Facts or ideas               | by means of:<br><i>information verbal:</i><br>written:      | Pieces of<br>information,<br>Communiqués<br>journals, and<br>reviews.   | A. L. M.*<br>Firms of<br>documentation.<br>Post-Press.                       |
|                                 | cinema-radio:   | Films.  | Cinema-Radio.  |
|                                 | <i>Reaching verbal:</i> written:                            | Pulpits,<br>Lectures,<br>Laboratories,<br>Catalogs-guides.  | Churches,<br>Schools and<br>Universities,<br>Associations,<br>Research.      |
| b. Objects or artistic creation | <i>Exhibition direct or reproduced</i>                      | Objects,<br>Specimens,<br>Animals,<br>Photos.   | Congresses-Fairs,<br><i>Exhibition</i><br>Committees.<br>A. L. M.            |
|                                 | <i>Performances live or recorded</i>                        | Catalogs-Programs<br>Disks,<br>Cards.   | Concerts,<br>Theaters.   |
| c. Persons or activities        | <i>Information [Renseignements]:</i>                        | Dossiers,<br>Registers,<br>Announcements,<br>Year-books<br>and directories.   | Police-<br>Statistics<br>Registry offices<br>Associations-<br>and Societies. |
| d. Sources of facts             | <i>Inventories: Commercial or official editions</i>         | Dictionaries and<br>grammars,<br>Chronologies,<br>Atlases and guides,<br>Treatises and<br>manuals,<br>Legal, legislative,<br>historical and<br>literary texts,<br>Encyclopedias,<br>Patents,<br>Catalogs. | A. L. M.<br>Authors and<br>Publishers,<br>Academies,<br>Learned Societies    |
|                                 | <i>Consultation or Communication and organized reading.</i> |   | STATE PATENT<br>OFFICE<br><br>A. L. M.                                       |

| OBJECT  | ACTIVITIES  | FORMS  | ORGANIZATIONS<br>(ORGANISMES)  |
|---|---|--|--|
| <b>2nd degree (Exploration) [Prospection] Sources of documents</b>                | by means of:<br><i>bibliographic orientation:</i>   | Card Files,<br>Registers,<br>Catalogs,<br>Bibliographies and<br>documentog-<br>raphies,<br>Research guides,<br>Lists of sources,<br>Lists of<br>organizations. | Archives,<br>Libraries,<br>Museums,<br>CENTERS OF<br>DOCUMENTATION.  |
| <b>3rd degree (Diffusion) Collectively used or individually adapted documents</b> | by means of:<br><i>Documentary production by selection, analysis, translation, reproduction, grouping, distribution</i> | Selections,<br>Extracts,<br>Analyses,<br>Reports,<br>Translations,<br>Dossiers,<br>Photos,<br>Documentary<br>editions.<br>( <i>Editions doc.</i> )             | Archives,<br>Libraries,<br>Museums,<br>CENTERS OF<br>DOCUMENTATION.  |
| <b>4th degree (Organization) Documentation</b>                                    | by means of:<br><i>Cooperation, Standardization [Normalization] and Documentary orientation</i>                         | Lectures,<br>Bulletins,<br>Manuals,<br>Commissions,<br>Courses.  | A Congress,<br>I Associations,<br>M Committees,<br>AFNOR <sup>2</sup> / ISO<br>UFOD <sup>3</sup> / FID <sup>4</sup> /<br>UNESCO,<br>Schools of<br>documentation<br>Centers of<br>documentation |

\*A. L. M.: Archives, Libraries, and Museums  
<sup>1</sup>"Docere": Latin verb meaning to teach something to someone; to bring someone to a state of knowledge.  
<sup>2</sup>AFNOR (Association Française de Normalization): French Association of Standardization.  
<sup>3</sup>UFOD (Union Française des Organismes de Documentation): French Union of Documentation Organizations.  
<sup>4</sup>FID (Fédération Internationale de Documentation): International Federation for Documentation.

## ***Appendix 2***

### The Technophobe a and the Madman (Excerpt from the script)

© Tyrone Henderson & Quimetta Perle (version 3, December 2000)

#### 1. Do You Hear Voices? (Madman)

Do you hear voices?

Yes! I hear voices.

The voices of others when they speak... pray,  
sigh, moan, groan, curse and cry.

I hear the voices of the rivers  
of the sea, of the wind, of the trees.

The voice of my past, my present  
history of time,

the voice of space

The voices of my ancestors.

Yes, I hear voices.

Do you believe

you have powers

no one else has?

Yes I do.

My powers are mine...

Do you see things that others can't?

Well in my imagination I do.

Even you can if you have imagination about yourself...

Henderson & Perle, Technophobe

#### 2. We Are All Code (Technophobe)

We are all code,

DNA spiraling endlessly,

Bearing our secrets like water in pitchers,

Even the hour and manner of our deaths.

Everything has already been revealed.

We are the encoders and the code.

**Appendix 3****distributed performance workshop April 26th 2011**

Participant: \_\_\_\_\_ role/instrumentalist: \_\_\_\_\_

## PRE-QUESTIONNAIRE

- 1) What aspects do you feel are important to establish a close connection with the other performers at the other sites?
- 2) Who do you feel you have to pay most attention to while performing, the performers in the same space as you or in the other sites?
- 3) What are the factors that you consider are important in assessing whether a performance is successful?
- 4) If you felt that your tempo is off (or out of synchrony), who or what do you rely on to correct?

## POST-QUESTIONNAIRE (respond to the following questions)

**compare with a performance in one site****1st piece**

How satisfied were you with the performance?

Much Worse Same Much Better

1 2 3 4 5 6 7

How would you rate your emotional connection with the other performers in your own space?

Much Worse Same Much Better

1 2 3 4 5 6 7

How would you rate your emotional connection with the other performers in the other spaces?

Much Worse Same Much Better

1 2 3 4 5 6 7

How important was the audio?

Much Less Much More

1 2 3 4 5 6 7

How important was the Video?

Much Less Much More

1 2 3 4 5 6 7

How similar was the audio?

Not at all Exactly the

Same

1 2 3 4 5 6 7

How similar was the video?

Not at all Exactly the Same

1 2 3 4 5 6 7

If you felt that your tempo is off (or out of synchrony), who or what do you rely on to correct?

**Compared with the one room scenario (respond to the following questions)****2nd piece**

How satisfied were you with the performance?

Much Worse Same Much Better

1 2 3 4 5 6 7

How would you rate your emotional connection with the other singers?

Much Worse Same Much Better

1 2 3 4 5 6 7

How important was the audio?

Much Less Much More

1 2 3 4 5 6 7

How important was the Video?

Much Less Much More

1 2 3 4 5 6 7

How similar was the audio?

Not at all Exactly the Same

1 2 3 4 5 6 7

How similar was the video?

Not at all Exactly the

Same

1 2 3 4 5 6 7

If things start going out of tempo (or out of synchrony), what do you rely on to correct?

**Compared with the one room scenario** (respond to the following questions)

**3rd piece**

How satisfied were you with the performance?

Much Worse Same Much Better

1 2 3 4 5 6 7

How would you rate your emotional connection with the other singers?

Much Worse Same Much Better

1 2 3 4 5 6 7

How important was the audio?

Much Less Much More

1 2 3 4 5 6 7

How important was the Video?

Much Less Much More

1 2 3 4 5 6 7

How similar was the audio?

Not at all Exactly the

Same

1 2 3 4 5 6 7

How similar was the video?

Not at all Exactly the

Same

1 2 3 4 5 6 7

If things start going out of tempo (or out of synchrony), what do you rely on to correct?

## **Appendix 4**

### Instructions for workshop piece by Ben-Zhen Sung

#### SECTION 1

Performers should arrange themselves in a semi-circle or similarly shaped cluster.

Begin with piano strings

*On cue...*

Breathe individually

*On cue...*

-Cello\* from Stanford start scratching

-Synchronize breathing with those around you at all sites

Continue for 10-15 seconds until all breathing at all three sites is together.

*On cue...*

*One after another, slowly!*

-1<sup>st</sup> whistler from Stanford on **Bb G E Bb**

-2<sup>nd</sup> whistler from New York on **F C A** (upon hearing 1)

-3<sup>rd</sup> whistler from Tromso on **D C F# B** (upon hearing 2)

-4<sup>th</sup> whistler from Stanford on an improvised phrase (upon hearing 3)

-5<sup>th</sup> whistler on from New York on an improvised phrase (upon hearing 4)

-6<sup>th</sup> whistler from Tromso on an improvised phrase (upon hearing 5)

-repeat sequence, but this time, all whistlers feel free to improvise!

Non-whistlers continue breathing loudly and together.

*On cue...*

*While whistling is going on*

-Cello\* scratch

*On cue...*

-Fade out whistling and breathing to silence! (Don't actually stop breathing ♪)

#### SECTION 2

*On cue...*

*One starting a few seconds after the previous*

-Instrument 1 from Stanford on an improvised melody

-Instrument 2 from Tromso on an improvised melody (upon hearing 1)

-Instrument 3 from New York (upon hearing 1 and 2)

So only three instruments should be sounding by this point, one at each site.

*On cue...*

-All rest of instruments at all 3 sites play improvised lines



*On cue...*

*While instruments are still sounding*

-1<sup>st</sup> shouter from Stanford start shouting

*On cue...*

-Fade in other shouters at all sites (those in NY and Tromso begin shouting when you hear the Stanford performers shouting)

Be creative in what you say! Short phrases and single words preferred. Anything goes, minus profanity. Imitate an echo effect.

Continue thus for 10-15 seconds.

### SECTION 3

*On cue...*

-Fade in synchronized breathing at all sites

-Fade out shouting over an interval of 10-15 seconds (one by one! Not everyone at once...)

*On cue....*

-Cello\* scratch

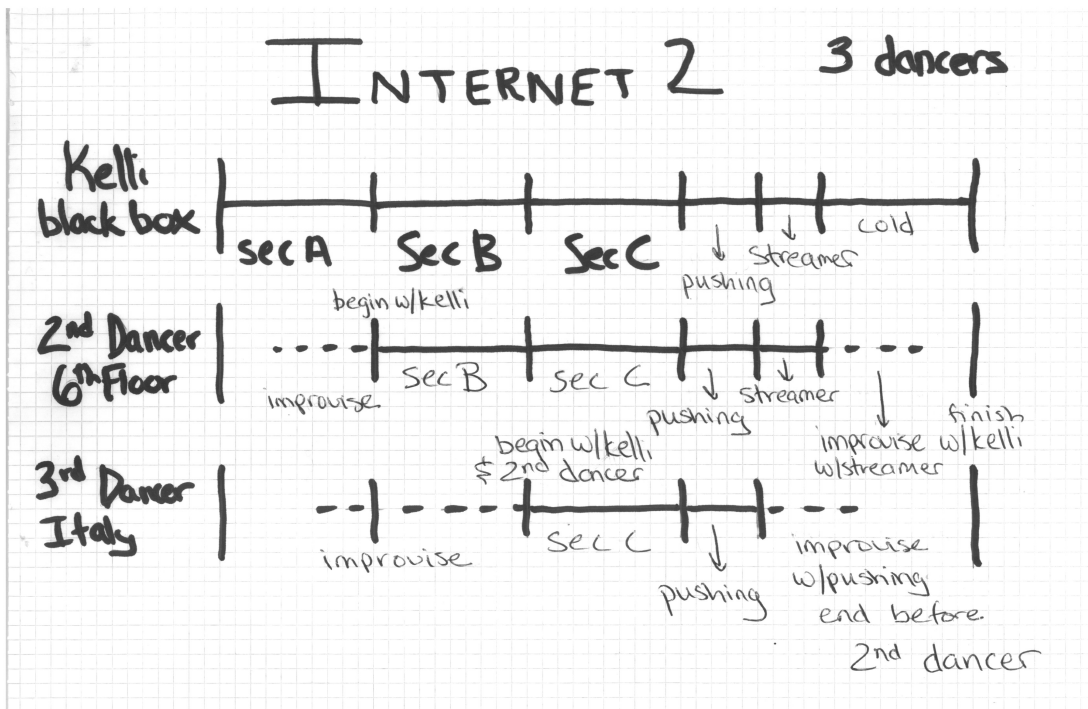
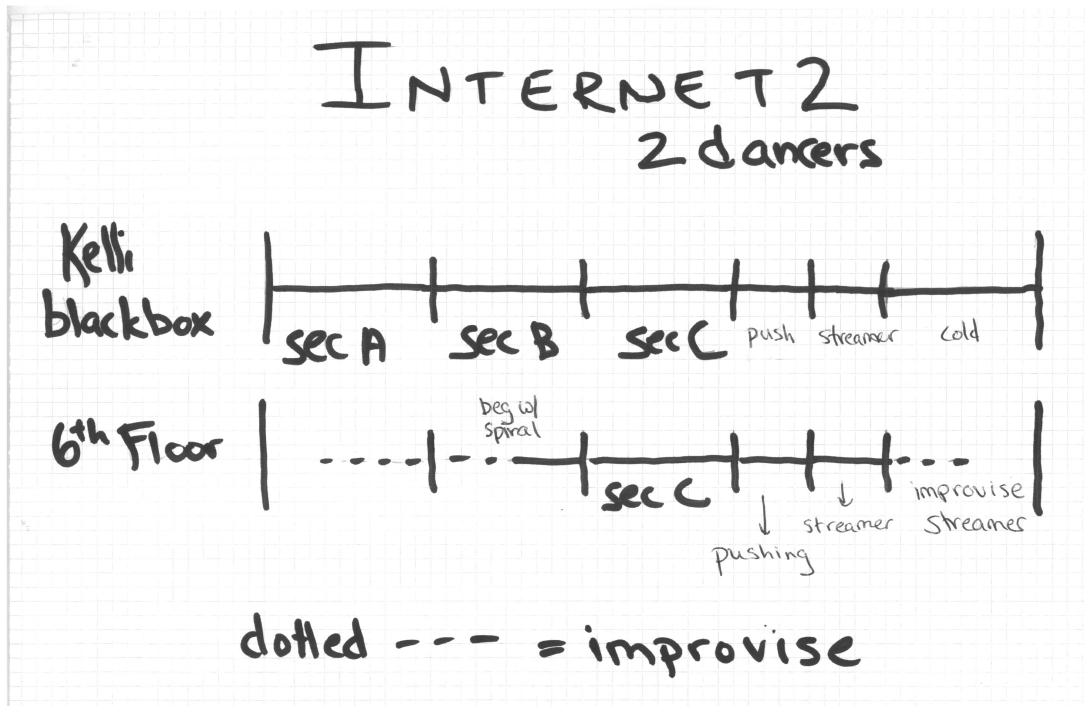
-piano strings

*On cue...*

-Fade into silence

**Appendix 5**

Dance instructions for "Tracing a Memory" by Reina Potaznik.



**Appendix 6**

Score for "Tracing a Memory" by Cheng-I Wang.


Tracing A Memory

Cheng-i Wang

**A piacere**

Cycle 1

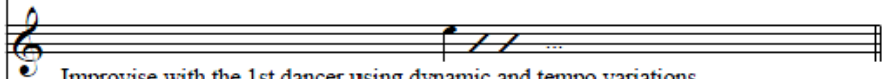
Piano @1st site



Cycle 1, follow the sequence and improvise with the 1st dancer using dynamic and tempo variation

Ped \_\_\_\_\_

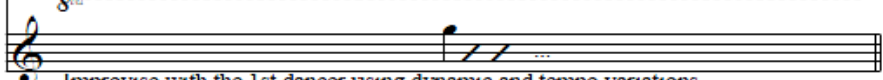
Piano @2nd site



Improvise with the 1st dancer using dynamic and tempo variations.

Ped \_\_\_\_\_

Piano @3rd site



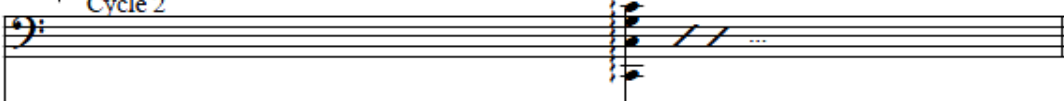
Improvise with the 1st dancer using dynamic and tempo variations.

Ped \_\_\_\_\_

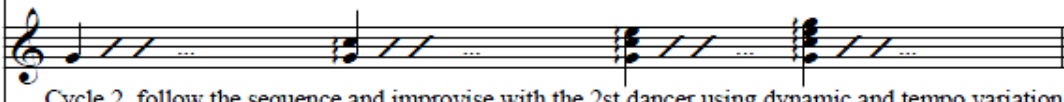
10

Cycle 2

Pno.



Pno.

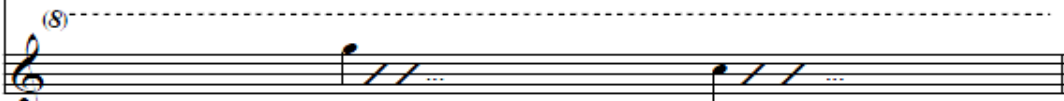


Cycle 2, follow the sequence and improvise with the 2nd dancer using dynamic and tempo variation.

Ped \_\_\_\_\_

(S)

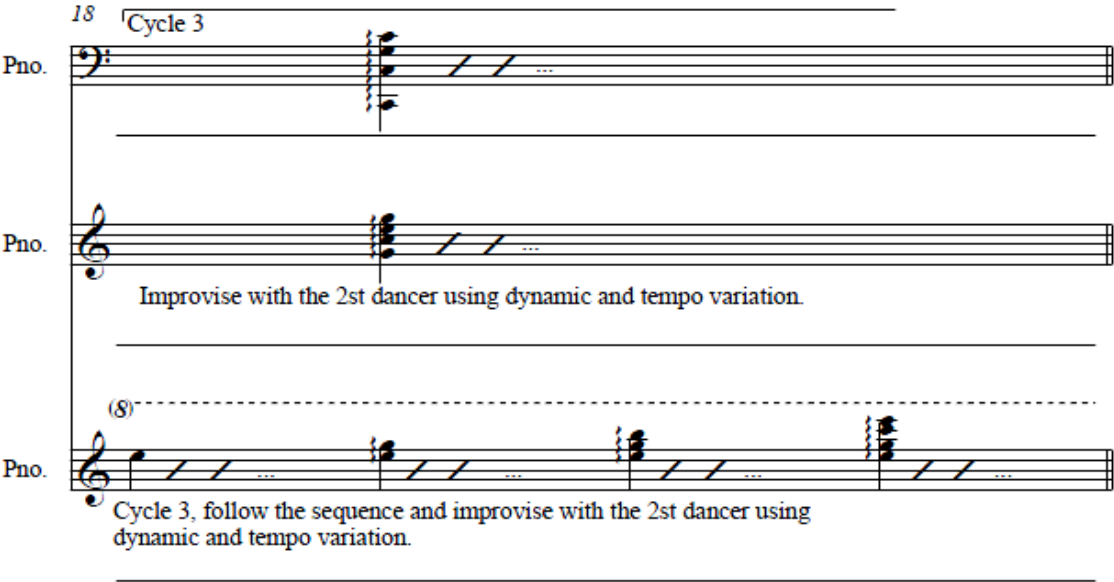
Pno.



Improvise with the 1st dancer using note G and note C for 2nd dancer, both with dynamic and tempo variations.

\_\_\_\_\_

18 Cycle 3



Pno.

Pno.

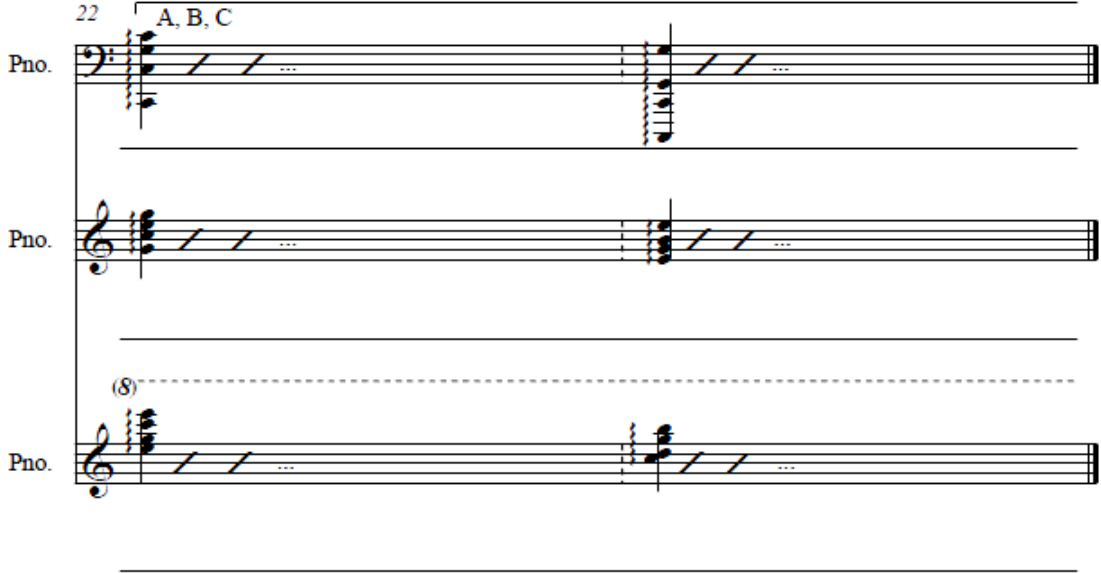
Improvise with the 2st dancer using dynamic and tempo variation.

Pno.

(8)

Cycle 3, follow the sequence and improvise with the 2st dancer using dynamic and tempo variation.

22 A, B, C



Pno.

Pno.

Pno.

For all three parts, these 2 chord should be played with random sequence and repetition times. Improvise with dancers at each one's own site using dynamic and tempo variations. Fade out with the dancer going off stage.

**Appendix 7**

Page 1 and 2 of "Too many seagulls waiting for you" by Kurage Ohhashi.

Too many seagulls waiting for you

1

Kurage Ohhashi

$\text{♩} = 55 \text{ to } 65$

:10       :20       :30       :40       :50

2

1:00       1:10       1:20       1:30       1:40       1:50

***Appendix 8***

Attached pdf.