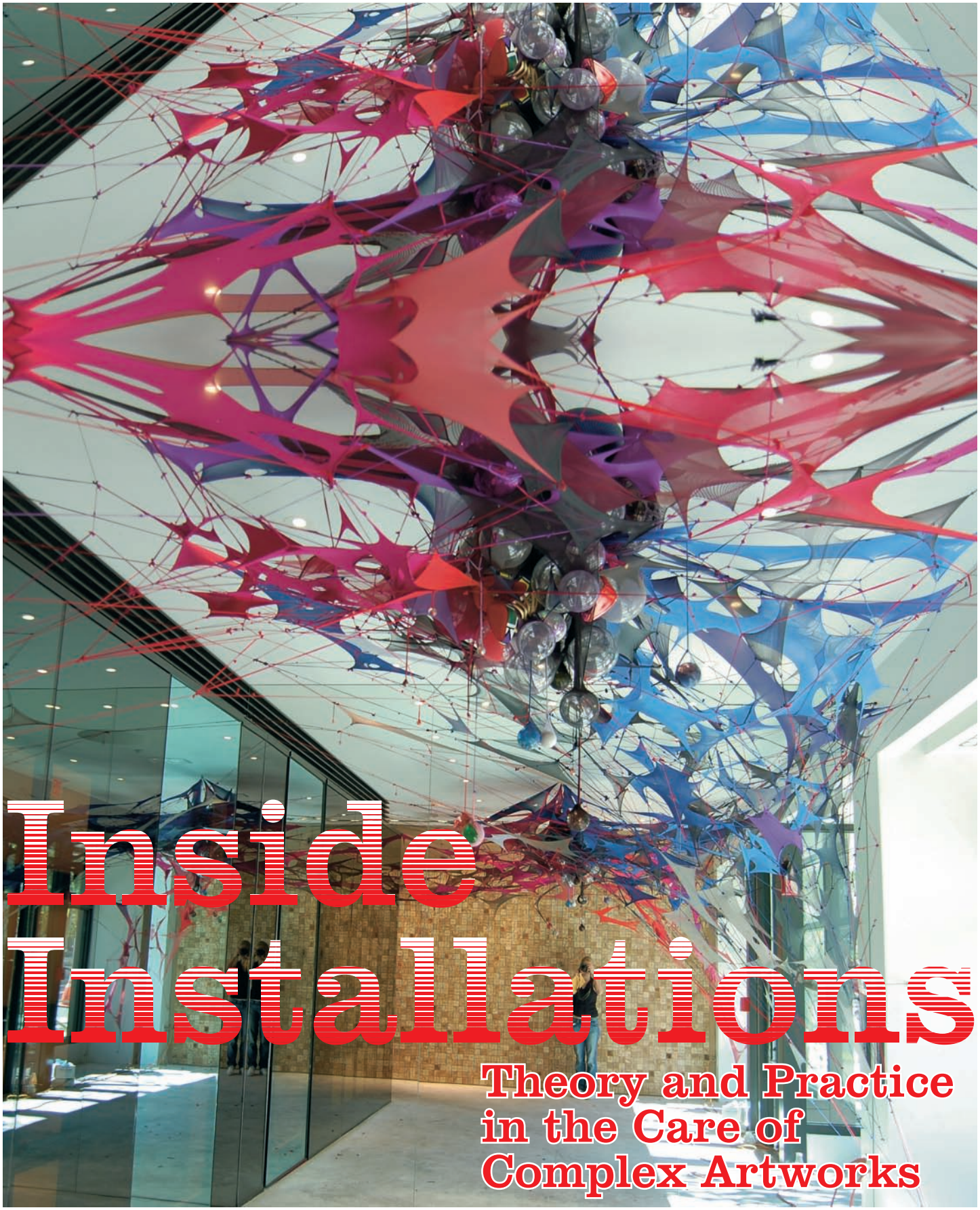

Inside Installations

Theory and Practice in the Care of Complex Artworks

editors: Tatja Scholte and Glenn Wharton

Amsterdam University Press

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6 **Foreword**, Janneke Ottens

Foreword - Inside Installations

This book brings together knowledge built up over many years of international collaboration. It illustrates the start of a new phase in contemporary art conservation research and at the same time marks the end of an epoch.
The Netherlands Institute for Cultural Heritage (ICN) was involved in projects to do with the conservation of contemporary art for fourteen years. Since the 1st of January 2011, these activities among others have become part of the Cultural Heritage Agency (RCE). This institute formerly dealt with immovable heritage. By bringing ICN within RCE, The Dutch Ministry of Education, Culture and Science aims to safeguard the quality of care for cultural heritage, while increasing the efficiency of that care. Within the new structure, the two institutes' responsibilities have been retained, i.e. providing specialist knowledge and advice, training and information regarding movable and immovable cultural heritage and granting loans from the collection.
Organizational developments, like the recent changes for ICN, resemble the kind of transformation that occurs in the lifespan of installations. Every time an installation is re-installed or co-created as a consequence of conservation measures, the installation ends one stage in its 'life' and starts a new one. Moreover, it becomes more and more apparent that working on installations requires close co-operation between different disciplines, different perspectives and strong networks of and for conservation professionals.

Inside Installations: Theory and Practice in the Care of Complex Artworks was created within PRACTICs[1], the fourth international project on contemporary art conservation led by RCE (former ICN). The 1997 symposium *Modern Art: Who Cares?* was the first and led to the establishment of the International Network for the Conservation of Contemporary Art / INCCA. As most readers will know, this network and it's online presence has now become the first stop for museum professionals looking to find and share the information and knowledge they need to carry out their work.
After the establishment of INCCA, a group of members wished for more in-depth research into installation art, an art form that has been challenging conservators for some decades. The *Inside Installations* project was born. Besides its dissemination through an international symposium, a documentary film, and expansion of the INCCA network, the book marks the final stage of this research into installation art. Hopefully it will not be the last project in contemporary art conservation for RCE as the INCCA network continues to grow and collaborations strengthen.

I would like to express my gratitude to all 26 authors who contributed from their own experience. I am aware that without the support of the museums and institutes involved this publication would not have been possible.
Many thanks to the coorganisers in the PRACTICs project: Tate, London (United Kingdom); Restaurierungzentrum Düsseldorf & Cologne Institute for Conservation Sciences – Cologne University for Applied Sciences (Germany); Museo Nacional Centro de Arte Reina Sofía, Madrid (Spain); Stedelijk Museum

[1] PRACTICs is an acronym for Practices, Research, Access, Collaboration, Teaching In Conservation of contemporary art.

voor Actuele Kunst / S.M.A.K., Ghent (Belgium) and the Foundation for the Conservation of Contemporary Art / SBMK (the Netherlands). The editorial board has done a wonderful job of creating a 'story-line' with the diverse chapters to bring the reader through the lifespan of an installation. In particular I would like to thank the main editors Tatja Scholte and Glenn Wharton for helping the expert authors to create chapters that are not only interesting but very readable as well. Thanks also go to the European Union for providing funds through the Culture Programme to make this book a reality.

This book shows that taking care of installations is a complex but fascinating task. It also perfectly illustrates the strength of the network approach. By bringing together specialist knowledge the results are more than the sum.

Janneke Ottens, Head Research Movable Heritage
Cultural Heritage Agency / RCE, the Netherlands

Part 1

Introduction

Introduction

Tatja Scholte

It is striking how often what we read in the literature about works of installation art is written from the standpoint of the spectator. The spectator's role is so important that it can be considered a complementary part, and sometimes the viewer is asked to interact with the work in a specific way.[1] As a spectator, one physically enters the space of the installation and undergoes a combination of sensory, aesthetic and psychological experiences. Inside that space, anything can happen: projections, machines making noises and motions, an accumulation of countless objects, smells or other sensations and, in some cases, a live performance. Words such as 'theatrical', 'immersive' or 'experimental' are often used to indicate that the artist intends the installation to create a total experience.[2]

Since anything is possible in an installation, regarding both the materials and techniques used and the intended experience, it is impossible to give a singular definition of installation art. This book therefore emphasizes the diversity of the form. There is one important connecting element, however, and that is the word installation in its most literal sense: the functional act of installing the work of art in the space concerned.[3] A consequence of this is that an installation, when in storage, is not the actual work of art. The installation only comes into being as work of art through the process of being installed, and this may repeatedly happen in different museums and exhibition spaces. Staging the intended experience presents new challenges in each new context. The processes involved in preserving the work, in reinstalling it, in finding ways to recreate the experience over and again, as well as the decision-making that underlies these processes, form the backbone of this book.
With many examples and from a variety of perspectives, the authors show how in practice museums assure the continued existence of installations, often in direct collaboration with the artist, for the benefit of future generations. The typically short lifespan of the materials and media of an installation places extremely complex demands on art custodianship. There are many questions to be considered in the conservation and reinstallation of the work. What did the artist originally intend and how has that concept been realized in the past? How can one preserve and document the installation? What is the relationship between the components and the space, and what is the spectator's part in the work?

Brief history

This book examines questions of this kind in connection with a number of case studies. At the same time, it reports on the results of an extensive research project that was conducted in the period 2004-2007 by an international group of custodians active in the conservation of contemporary art. Art custodianship is a vigorously growing discipline that continually raises new questions. No unequivocal answers are offered here. The book does, however, try to shed

1 Bishop, C. 2005. *Installation Art. A Critical History*, London: Tate Publishers, pp. 6-10.

2 ibid.

3 Suderburg, E. 2000. *Space, Site, Intervention: Situating Installation Art*, Minneapolis: University of Minnesota Press

light on the current state of play in preserving and presenting complex works of art and on the related ongoing discussions. In so doing, it forms part of a series of international studies and publications that have appeared in the last ten years.[4]

The well-known symposium *Modern Art: Who Cares?* (Amsterdam, 1997) was followed in 1999 by a publication of the same name. In that same year, a network for the conservation of contemporary art was established, called the International Network for the Conservation of Contemporary Art / INCCA, in which conservators and others involved in this field exchange knowledge and information. INCCA stimulates collaboration, and one of its follow-ups was the European project *Inside Installations: Preservation and Presentation of Installation Art*. The most recent event was the international symposium *Contemporary Art: Who Cares?* (Amsterdam, June 2010) which hosted presentations of Inside Installations' results. The *Inside Installations* project is the starting point for this book, which includes the outcomes and results of the project. It is a provisional culmination of international collaborations but, especially in the case studies, the book also devotes substantial attention to recent developments.

The *Inside Installations* project

The European research project *Inside Installations: Preservation and Presentation of Installation Art* (2004-2007) was initiated by a group of founding members of the International Network for the Conservation of Contemporary Art / INCCA.[5] In total, around 50 professionals from six European countries participated, representing 25 museum and cultural institutions. *Inside Installations* was supported by the European Commission's programme Culture 2000.

The project was coordinated by the Netherlands Institute for Cultural Heritage / ICN (as of 1 January 2011 known as the Cultural Heritage Agency / RCE) and co-organized by five other European organizations: Tate, London (United Kingdom); Restaurierungzentrum Düsseldorf (Germany); Museo Nacional Centro de Arte Reina Sofía, Madrid (Spain); Stedelijk Museum voor Actuele Kunst / S.M.A.K., Ghent (Belgium) and the Foundation for the Conservation of Contemporary Art / SBMK (the Netherlands). Each co-organizer invited national partners to participate in the project. Endorsed by a history of collaboration, three co-organizers took up partnership with existing networks: Restaurierungscentrum Düsseldorf with their colleagues who already joined the contemporary art working group of the German Conservators Association (VDR); Museo Nacional Centro de Arte Reina Sofía worked together with a group of contemporary art conservators of the Spanish International Institute for Conservation (IIC); and the SBMK partnered with associated contemporary art museums in the Netherlands. Additionally, Tate took on Tate's Digital Programmes as an affiliation and S.M.A.K. formed a liaison with the Academy of Fine Arts in Warsaw.

[4] Examples of international projects on the care and conservation of installation art include: www.variablemedia.net/e/welcome.html; www.tate.org.uk/research/tateresearch/majorprojects/mediamatters/; www.aktivearchive.ch; www.docam.ca; www.inside-installations.org (accessed 15 July 2010)

[5] INCCA is a network of professionals connected to the conservation of modern and contemporary art and was established to meet the need for an international platform for knowledge and information exchange. Conservators, curators, scientists, registrars, archivists, art historians and researchers are among its members. See www.incca.org (accessed 15 July 2010)

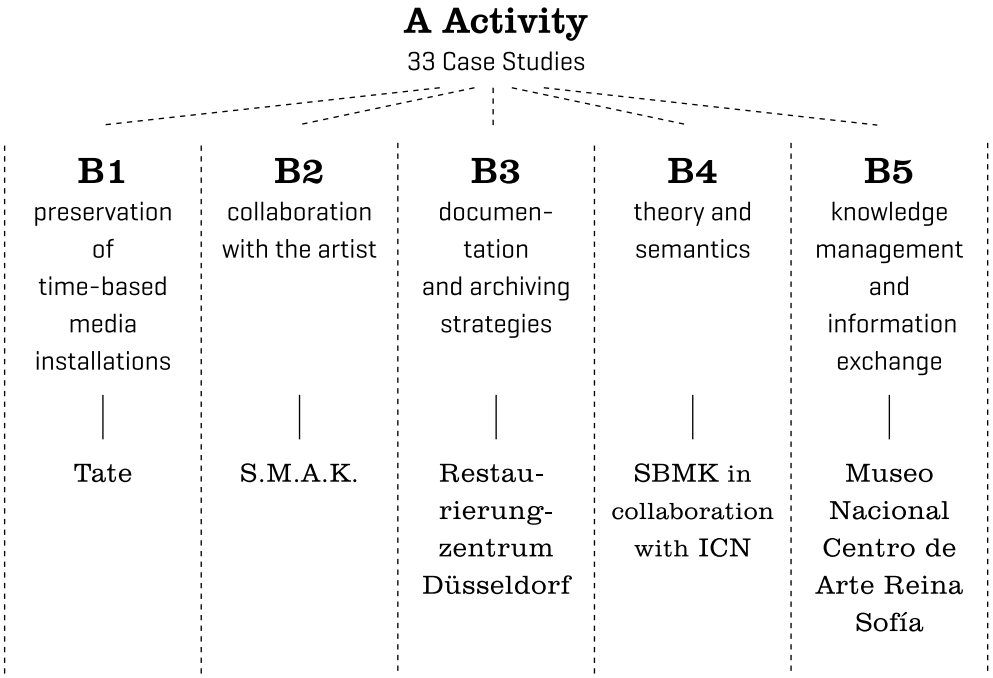
Research matrix

Inside Installations started with an inventory of key questions and challenges evoked by installation artworks, such as the following:

— Installation artworks are often created for site- and time-specific occasions, implying that re-installations of the work are variable in different contexts.
— Installations raise questions for which the participation of the artist is needed.
— Installations often include ephemeral materials and/or time-based media, such as audio-visual and electronic media that have a very short lifespan and easily become obsolete; these materials contest standardized solutions for their preservation.
— Performance can be part of an installation, raising issues of re-enactment and documentation of theatrical aspects.
— Installations may imply multi-sensorial experience: what strategies can be applied to conserve sensorial aspects such as sound, vision, touch and smell; how can the spectator's involvement with interactive works of art be preserved?

The project asked: 'How can we safeguard these expressions of our contemporary visual culture so that they can be experienced by future generations?' The rationale was to combine research activities with the daily practice of the participants as much as possible, thus the project was largely based on 33 case studies from collections of the participating museums. As an 'applied research' project, it enabled partners to investigate their own installation works, to carry out conservation treatment when needed, to draw up guidelines for future preservation and re-installation, and to share the outcomes with partners and other professionals.
On different levels, collaboration was pursued so that all case studies were presented and discussed during the project's workshops. Sometimes partners actually collaborated during their case research and many of these collaborations were used as research material for developing good practices. Finally, all participants added the results of their case studies to the project's information platform, the website www.inside-installations.org.

The works of art selected for the project were created between 1970 and 2005. Most of the works represent a specific problem or type of installation work, such as: extra-large-scale installations, installations consisting of multiple artefacts, works that are made up of of combined materials and media, or that are constructed from temporary or ephemeral materials, and installations that are conceptual works or remakes, including performances. The diversity in materials, media, content and conservation problems made the results rather specific for each installation. In order to build up good practices and useful recommendations, it was necessary to design an overall research method that would orient individual activities to the leading questions of the project. A solution was found in a matrix structure in which the case studies were categorized as 'A activities', and five special research topics were categorized as 'B activities'. Some researchers were assigned to carry out 'special



❶ *Inside Installations* research matrix. Includes the co-organizer responsible for each research topic (B activity).

projects' within the B activities. Ideally, all case studies should contribute to new insights for good practices and the research areas of the B activities. ❶

[6] See note 4.

Results

— Thirty-three case studies have been preserved for the future: conservation treatment was carried out when needed, documentation was compiled and guidelines for future re-installation were created. Communication and collaboration with the artist was also documented, in most cases.
— Good practice guidelines and models were developed on a variety of topics (B activities); these will help to preserve installation art for future generations.
— A number of events (public seminars and workshops) took place during the project.
— A variety of dissemination formats were created, including an extensive website (www.inside-installations.org) and a booklet with summaries of all research activities.
— Three e-learning packages (websites) on conservation were produced; these are case studies on Bruce Nauman and Carlos Garaicoa as well as a package on recording installations using video.

The project participants learned from similar projects and other initiatives which were carried out during the same period of time.[6] Because preservation and presentation of installation art will continuously challenge their custodians, the issues addressed in this book will remain a subject of study.

One of the objectives of the project was to foster a greater openness and transparency in the decision-making process regarding contemporary art by means of collaboration and knowledge exchange. It enabled a cross-fertilization of ideas and new insights. A striking outcome of the project has been the widely shared recognition of the illusory nature of expecting to find neutral solutions for problems in the conservation of contemporary art. Since the human factor – inherent to a living artist and to a dependency on decisions taken on largely subjective grounds – is so crucial, communication and sensitive negotiation have become fundamental to conservation practice. There is considerable interest in these processes and in the alleged polarity between 'objective' and 'subjective' forms of research and conservation, not only in contemporary art but also in other heritage sectors.[7] Gaining a better insight into the dynamics of communication, negotiation and decision-making is still one of the main challenges for the future ❷.

The book opens with an historical account of installation art in all its diversity, in a chapter which touches on the wide-ranging problems of its conservation (Jadzińska). Aside from pioneering work by the historic avant-garde of the early twentieth century, artists' installations started appearing in museum collections somewhere in the early 1970s. Questions regarding their preservation and presentation occupied the concerns of professionals from that point onwards; nonetheless, more and more installations of that initial period suffer from widespread defects due to wear and failure. They may now be considered well on in years, as are most of the artists who made them. It is therefore particularly urgent to consider conservation strategies for these early installations – in dialogue with the artists – and to document aspects that will be relevant for the future. Installations are complex works which may be subject to change at any point in their life span, so it is equally important to consider how to perpetuate installations of a more recent date.

Part 2 - Installation Art and the Elastic Form, presents different ways of addressing the question of how artists' installations can be preserved – even if they were not even meant to last forever. This touches on the core question in the conservation of works whose elements are susceptible to impermanence and change for reasons that may range from the artist's intention, to the (im)permanence of the material. How do conservators and other custodians decide whether elements of an installation may be allowed to age and deteriorate or if they should be replaced? If the latter, to what extent and in what form? What strategies are available to conservators? The examples in this book illustrate solutions that have been adopted in various situations, and show how thrilling the quest can be for the 'heart' of the work of art, for the conceptual integrity of an installation that must be preserved despite changes in its material manifestation.

Installations that incorporate time-based media bring these questions to the forefront (Laurenson). Rapidly changing industrial standards and the obsolescence of equipment make modifications inevitable. Some of the media works investigated during the project still operated with their original technology, but clear guidelines for their maintenance and presentation had never been established. What documentation is necessary? How are decision-making procedures applied in daily practice, and what knowledge must be

[7] Richmond, A. and Bracker, A. 2009. *Principles, Dilemmas and Uncomfortable Truths,* Oxford: Elsevier/Butterworth-Heinemann, p. xiv-xvii.

❷ Inside Installation project researchers share knowledge during first workshop, Amsterdam, 26/27 November 2004. PHOTO Patrick Bras.
❸ Inside Installation project researchers during final workshop, London, 22/23 March 2007. PHOTO Tatja Scholte.

transferred to conservators who will take responsibility in the future? Apart from re-installation and conservation, the purpose of the case studies included providing documentation (or supplementing existing documentation) and drawing up technical guidelines. As often as possible, collaboration was sought with the artists, or with anyone else qualified to provide information on artistic intent, characteristics or conservation history of the installations.
The question 'How flexible is an installation?' has been addressed by many authors. Not only technical, aesthetic or ethical considerations are decisive to answer this question, but financial possibilities and limitations, along with legal concerns and many other factors.
The book contains a number of examples in which the investment in (future) preservation measures has been taken into account, such as in the case study *Liquid Time II* by Fabrizio Plessi (Zirlewagen, Tykwer). Another example is a risk assessment conducted for an interactive video sculpture made by Jeffrey Shaw and Tjebbe van Tijen, *Revolution. A Monument for the Television Revolution,* consisting of obsolete technology (Brokerhof). A conservation strategy that emerges in connection with many installations is emulation, in which the appearance of the work, its look and feel, are preserved as closely as possible, while technical components that hamper the functioning of the installation through wear and failure are replaced by contemporary technology (Wijers). The search for alternative conservation strategies of this kind is a topic that continually recurs in the case studies of installations that incorporate time-based media or a performance component (for which re-enactment is a strategy which is in fashion today).
Ulrike Rosenbach's *Don't Believe I'm an Amazon* is one such installation, although there is more to it than that. It is an example of a work of art that occupies a niche somewhere between performance and visual art, with the result that, over the course of time, multiple versions of it have come into being. Documentation plays a key role here, but we must question the status of recordings of different performance moments and what implications they have for the identity of the work. Or, in general, how can we perpetuate different versions of the same performance-based video installation? It is a performative practice that forces us to explore the boundaries of conservation and reinstallation practices (Pfenninger, Jarczyk). Similar problems arise when an installation is not necessarily performance based but is site-specific, such as the conceptual works of Joseph Kosuth. In a case study on this artist, the conservator considers the versions of a particular work which have resulted from it being interpreted and exhibited in different ways by various museums. This practice data provides a basis for a thorough analysis of the options for future decisions on reinstallation and conservation (Stigter).
One of the findings of the project has been that installation art requires rethinking of many of the terms applicable to traditional art conservation, and sometimes calls for radical solutions. Ethical principles that may govern the conservation of traditional art become much more complex when applied to installation art.[8] There is much to compensate however. Firstly the artist is in many cases still alive, and secondly there is a close cooperation between disciplines in day-to-day practice. As was repeatedly evident during the project, the cross-disciplinary network approach forms an excellent basis

[8] On different occasions, authors have written about issues of ethics and decision-making around complex works of art. Two examples are: Wharton, G. 2005 'The Challenges of Conserving Contemporary Art', in: Altshuler, B. *Collecting the New: Museums and Contemporary Art*, Princeton: Princeton University Press, pp.163-178; Weyer, C. 2006; and 'Restoration Theory Applied to Installation Art', in: *Beiträge zur Erhaltung von Kunst un Kulturgut*, Volume 2, Bonn: Verband der Restauratoren, pp. 40-48.

for the perpetuation of installation art, as well as for a fruitful interchange of experience and insights. **Part 3** - Participants in the Process, sheds light on the various forms that cross-disciplinary cooperation can take. Its importance in conservation and reinstallation as a way of voicing the artist's intentions, and in documenting processes in the presence of the artist, has been often underscored underlined in recent years. The chapter 'The Artist Is Involved! Documenting Complex Works of Art in Cooperation with the Artist' reviews the many forms this cooperation can take (Huys). A critical remark is also in order here, however, for we may wonder just how far the artist's involvement should go. Should the artist decide about conservation? In 'Who's Right? The Artist or the Conservator?' (Sommermeyer), the reader is reminded that deciding when and how the artist should be involved in (or excluded from) conservation decisions is a matter of critical evaluation. Questions like these have no general answers and will differ from one situation to another, but it is clear that in these complex situations, the roles not only of the artist but also of the restorer, conservator, technician, documentalist and so on are changing, and that their responsibilities are not always easily definable. More and more often, teamwork proves to be the answer; conservation decisions have to be weighed up from different perspectives in a process of negotiation. An example cited in this book is the restorer who endeavoured to 'perpetuate' the context and history of a highly political work, to make it comprehensible to people in future (Smeltzer).

Part 4 - Recording the Process and the Process of Recording is devoted to documentation. Recent conservation practice on installations and other contemporary art forms has highlighted the importance of documentation as a precondition for perpetuation of the work. For works that must be reconstructed each time they are reinstalled, documentation is often the only physical evidence that remains after the installation has been dismantled. It is therefore essential to provide appropriate documentation, and this involves choosing a suitable approach in advance. There have been many useful initiatives in recent years towards raising awareness of the need for documentation and towards developing methods for documenting installations in all their variability. What may or may not be changed while respecting the artist's intentions, and what conservation options are available? This book aims to make a similar contribution by surveying the many methods and tools developed in different areas of documentation.
The first documentation topic addressed is the complex task of systematically archiving the huge quantity of heterogeneous information available and of keeping it accessible. This information relates to processes associated with production, conservation and reinstallation, and it is extremely challenging to systematically classify. The chapter 'Documentation of Change – Change of Documentation' proposes a framework for organizing the varying requirements documentation has to meet and the varying physical forms it can take (Heydenreich).[9] In the chapters concerning documentation of such aspects as movement, sound, spatial characteristics and light, deciding which aspects to document calls for at least as much thought as the technical alternatives available. The authors therefore pay close attention to the overall approach

[9] Different documentation models, e.g. those developed by Tate and S.M.A.K., can be found at the *Inside Installations* website www.inside-installations.org (accessed 15 July 2010)

– to the planning required for the effective deployment of a documentation technique. Advanced visualization and documentation techniques moreover offer means for the three-dimensional representation of an installation work, both during the installation process and after the work has been installed in the space (Baumgart; Wagner; Bek; Grün).

Finally, **part 5** - Right to Age or Time for Change, reflects on the extent to which installations should simply be allowed to age. It examines the example of a work by Thomas Hirschhorn which includes impermanent materials. Conservators were faced with the practically impossible task of keeping the original material while in this case the artist has an explicit opinion on the matter which 'contradicts' that of the conservators. Given the widely different perceptions of authenticity, how can one deal with dilemmas of this kind in practice? (Grün) Instead of adopting a strategy of flexible form, should one in some cases accept the natural deterioration of the materials with the implicit consequence that the work will at some point cease to exist? Questions of different views on conceptual integrity come to the fore when, for example, a replica seems to be the only feasible conservation strategy. When is a replica consistent with the ideas of the artist and the conservator, and when is it not? Which criteria apply? What should happen when the opinions are contradictory? (Luber, Sommermeyer)

The latter chapter by Luber and Sommermeyer argues for considering all the alternatives and for transparency in the decision-making process as a prelude to action. In practice, the process is often methodologically far from ideal, with the result that differences in outlook arise among those involved, or that there are collisions of ethical (and practical) principles. Despite the international projects and symposia that have taken place in recent years, the discourse on contemporary art conservation is still in its infancy as regards such differences of outlook. One of the aims of the book is to contribute to a re-evaluation of practices, and to the self-analytical insight that sometimes may arise by conducting case studies. Vivian van Saaze undertook a close examination of the practices she encounterd in the course of the project and she reports from her experiences as 'outsider' and ethnographic researcher, who used the case studies for her fieldwork, in the final chapter in this book.[10]

Looking back over the *Inside Installations* project, some questions arise regarding the museum of contemporary art as an institution. What vision underlies a museum's choices, and what part do staff members' research acticvities and museum collections play in this vision? In recent decades, museums and their staffs have been under particularly heavy pressure to acquire new art forms, and to place challenging works on exhibition and loan. The museum as an organization is increasingly pressured to serve the global 'exhibition machine'. This situation often determines allocation of staff or financial assets, generally at the cost of a different museum model that gives priority to making the collection accessible to the public by means of collection research. It is obviously a question of priorities, and research into conservation practice is undeniably extremely time-consuming and expensive – yet it is crucial for the future of works of art. For the project, we were fortunate that all participants were able to make their valuable time available. The

[10] Van Saaze, V. 2009. *Doing Artworks. A Study into the Presentation and Conservation of Installation Artworks.* Ph.D. thesis, Faculty of Arts and Social Sciences, Maastricht University and the Netherlands Institute for Cultural Heritage.

participating museums were working not only on behalf of their own collections but contributed, in the form of case studies and additional research, to the general body of knowledge of the conservation community. A particularly memorable remark made during the project was that '*Inside Installations* has created a "box of peers"'. The project brought together conservation professionals from far and wide and gave them a rare opportunity to interact at a personal level. It reconfirmed the idea that social processes play a significant part in the conservation of complex installations and of contemporary art in general.

The Lifespan of Installation Art

Monika Jadzińska

Art is the most intense mode of individualism that the world has known. Oscar Wilde

Abstract
The character of installation art defines its lifespan, and this character is constructed not only by the artwork itself, but by the viewer and the individuals to whom the future of the work is entrusted. Installation art breaks away from traditional artistic rules in the sphere of ideas and their representation – as well as the materials and technology – to establish identity based on wide diversity. All this must be considered in strategies of care, re-installation and documentation. In this chapter, the characteristics that define the identity of installation art are presented in respect to the changing aspects of matter, context, process and viewer perception. New approaches for stakeholders and new strategies for care, preservation and conservation are also assessed.

Variety of installations and their lifespan

The character of installation art

Installations are a conglomerate of forms, ideas and meanings which incorporate different media and objects, new technologies, space and place as well as sensory stimuli to create a specific kind of unity. The finished work may be the effect of a conceptual attitude, in which the material is only the carrier and as such can even be replaced or undergo self-degradation. Installations are intended to be a process or action, situating the work on the boundaries of performance art. They evoke the physical and psychological involvement of the viewer through the use of various senses. These works can be created for a specific place and time as a particular arrangement of the spatial pattern or, on the contrary, they can be an entirely mobile form. Why did such a hybrid form of visual art come into being, and what are the common features of all this variation?

Changes in international culture led to the generation of new forms of artistic expression. Art reached places and social spheres which had not until that time been exploited. The ´immersion´ of the viewer in the work that occurs when he exercises all of his senses was obtained by the use of media from different disciplines and fields Installation art was born as an open form of art, a bricolage, in the terminology of Claude Levi-Strauss. Selected relationships of the elements, concepts, meanings and sensual experience undergo shifts in successive realizations.[1] There then comes into existence a new mental and structural system, which undergoes new interpretations. New needs create new forms for which the dependence on the space, process and

[1] Guzek, Ł. 2007. *Installation Art. Relation between Space and Presence in Contemporary Art*, Warsaw: Neriton.

the viewer are often crucial, as are changes in the approach to the material of the work of art. The huge degree of individuality of the appearance, media and concepts renders it difficult to create a homogeneous system of guidelines for the preservation of installation art for the future. But it is precisely this variety that defines their lifespan.

Genesis

The extreme diversity of installation art may be indicated by the fact that its origins can be traced to extremely dissimilar artistic and non-artistic traditions. We can associate them with forms in which the important thing was the active presence of the viewer reacting to the arrangement of a variety of materials and objects in a given space (for example, *Wunderkammern and Kunstkammern*, the construction of follies or collections of curiosities). The definition of an installation as a purely artistic practice indicates avant-garde art as its source. Here it seems the investigations of the futurists, constructivists, dadaists, surrealists and the experiences of the Bauhaus were crucial. Though primarily drawing on the avant-garde movements, installation art was not closed to the influences of other fields, such as architecture, visual arts and performing arts.

The history of installations must therefore be seen in the context of art developments throughout the twentieth century: the creative activities of El Lissitzky, Kurt Schwitters and Marcel Duchamp in the 1920s, environmental art and happenings in the later 1950s, and minimal art and conceptualism in the 1960s. In the 1970s and 1980s there was an explosion of different forms of installation art, while in the 1990s we see its wider dissemination and acceptance by critics and its 'institutionalization' by museums and galleries.[2] Installations have become part of the postmodern discourse as a formulation of our own times. This explains the tendency to classify a large amount of modern works to this category of art which do not fit easily into other groups.

Relevant aspects of installations

Different roles of materials and objects

Installation art rejects traditional and established artistic opinions, semantic and material orders, and spatial relationships. It was, among other things, a consequence of a new attitude in the matter of artworks. At the turn of the nineteenth and twentieth centuries, artists finally left behind the long tradition of handcrafted artworks. They began to choose their materials without any thought for the consequences of their use, or even counting on their deterioration. In accordance with the thinking of Duchamp, it is not the physical attributes of the work which are important, but the ideas embedded in the object. Thus material has ceased to be the basic and irreplaceable element of the work; it began to play a subsidiary role, becoming changeable and ephemeral. A work of art could now be made from any material (for example, fat, ice, grass or food) or utilize non-material elements such as sound, light or smell. The role of the object also changed. From the early 1920s on, an art object was no longer perceived in terms of its aesthetic qualities, but as a material manifestation of the ideas of the artist. Works were intended to provoke the viewer to consider whether objects are important in themselves or whether

[2] Bishop 2005.

they only gain a fuller significance in relation to different contexts (for example, the *Poubelles* of Arman). Objects began to be collected not with regard to their individuality, but for their ability to represent a whole class of objects. New worlds were created with the use of familiar materials arranged in surprising systems of signs which referred to certain codes and conventions. This created new possibilities of reception as interaction. The intermediality of art was the occasion to broaden the manner of perception, utilizing sensory phenomena as a constitutive element of the work (for example, the works of Robert Irwin, James Turrell or Michael Asher in the 1970s). The development of modern media and technology created new opportunities for experimentation in the context of time, permanence and impermanence.

Contextuality. Dependence on space and place

In visual art throughout the twentieth century, a subjective model of space played a significant role (including among constructivists in Schwitters' Merz, in the creations of the Bauhaus, in exhibitions of the surrealists and in Brian O'Doherty's White Cube). In the 1960s, the word 'installation' appeared in the context of the technical activities connected with exhibition. This gave rise to the qualification of space in connection with the arrangement of a work within it as the art of installation. This could have been a limited, closed space (such as the interior of an artistic or non-artistic institution) or it could have been an open space (such as a townscape or natural landscape). Thus, space underwent a re-creation resulting from its use in an artistic medium. At times it was specific (site-specific), and at times it was variable (mobile works and process works). In the case of the first group, the place and space is found and chosen with regard to its specific character and is treated as an integral element of the artwork which forms a certain type of 'attachment'. It is a place to which the work itself refers and which it reconfigures in the course of its reference to it, so the same objects exhibited in a different place would create a different meaning. In the case of mobile installations (projects) we are dealing with the opposite situation, which are planned with different temporal frameworks and changeable spatial references in mind (for example, the projects of Spencer Tunick). The spatial relationships and the context connected with place are reflected in the polyphonicity of the form of the installation. The function of place and space might be different, but they are always important.

Installations, as stated earlier, undermine traditional conventions and routines. This occurs by conducting a certain type of game with contexts (spatial, cultural, social, geographical, political, etc.) and particularly our habits regarding them. This gives installations an 'open' character, and they are dependent on the individual experience and perception of the viewer.

Processualism

In installations, often the initial appearance is not the only form of the object. This is defined by the result of the multi-aspectual confrontation with other objects or subjects, the processes which the object undergoes with the passing of time. Many works of installation art express the idea of temporality, in which the material becomes a medium through which to observe a process. In

order to achieve the required expression, the artist can change the work or its elements each time in successive exhibitions. This type of installation would always be in a permanent state of creation and transformation. The Riegelian factor of basing the value of the object on time takes on a specific significance here, though a somewhat contrary one with regard to the intentionality of the creator.[3]

Relativity of spatial relationships

Since the times of minimal art, frequently considered as a bridge linking traditional sculpture and installations, the relationship between visual works accenting the internal and external spatial relationships has grown in importance. This may be observed in the case of assemblages, in which the interconnections between individual parts of the work were of importance, and environment art, with its references between space and the structure of the arrangement. A characteristic feature of the installation has become the relativity of the elements with regard to space, the inner relations of elements of a given work and its external relationships with the viewer.

Different reception of stakeholders

The viewers

Cultural and social changes, dynamic technological transformations and the exceptional rapidity of change within all spheres of life have led to new ways to experience art other than through contemplation. The response to that has been the emergence of impermanent, dismembered and decentralized art, multiplying the perspectives and breaking away from the Renaissance model which considered that there was an ideal place in which art could be appreciated. The relationship between art and its audience underwent reassessment. Traditional art had as its main aim the creation of objects that were in themselves beautiful in order to evoke aesthetic experiences. Conceptualism and the artistic disciplines related to it (installations as well as performance and forms of interactive art) led to dismantling the aesthetic tradition, the 'deformalization' and 'dematerialization' of the work of art and ultimately the blurring of boundaries between individual artistic disciplines.

One of the principles applied by the creators of installation art is the provocation of the activity of the viewer through an interaction between the viewer and the artwork (starting with the Dadaists). It is precisely the active presence of the viewer in the space and the influence of his senses which differentiate installation art as an art form of phenomena[4] from traditional art – as well as to a great degree from other currents of modern art. The perception of the viewer is treated not as a consideration of the object, but as 'belonging' and present. The subjective experience of the viewer and their perception has become one of the most important factors utilized by artists.

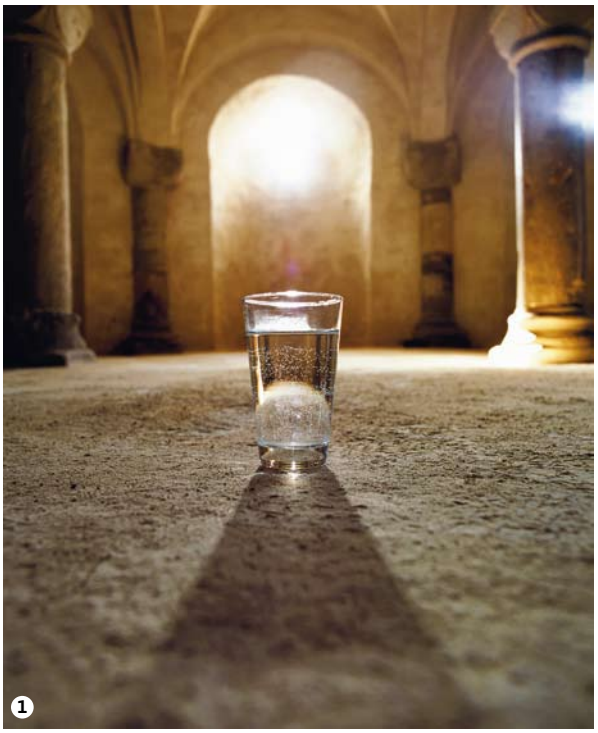
Artists

Through the lack of boundaries defining the form and choice of material, the emphasis is placed on the artist's concept. The individual iconography of a given element, object or material is usually precisely connected with the meaning of the work.[5] Artists themselves draw attention to the form of instal-

[3] Kasperowicz, R. (ed.). 2002. *Alois Riegl, Georg Dehio i kult zabytków*, Warsaw: Oficyna Wydawnicza 'Mówią wieki'.

[4] Irwin, R. 1985. *Being and Circumstance: Notes Toward a Confidential Art*, California: Lapis Press.

[5] Hummelen 1998.



❶ K. Kamoji, *Wasser*, Magdeburg 1999, installation, dimensions and form variable. installation, Museum of Contemporary Art, Zagreb. PHOTO Hans-Wulf Kunze. ❷ K. Kozyra, *Men's Bathhouse*, 1999, installation, Museum of Contemporary Art, Zagreb, 2009. PHOTO M. Jadzińska. ❸ V. Penezić, K. Rogina, *Who Is Afraid of the Big Bad Wolf in the Digital Era?* Museum of Contemporary Art Zagreb 2009. PHOTO M. Jadzińska. ❹ S. Dróżdż, *Alea iacta est*, 2005, installation, printed version, Appendix 2, Warsaw 2008. PHOTO M. Jadzińska.

lation art, leaving (themselves or others) an open road in the future to the right to change the material, form and setting of the object in deference to the location of exhibition, the parameters of the exhibition space or context. Changes occur in the ontological sphere – a new object is produced or there is a new situation which the artist has created which is supplemented by the interaction of the viewer and constituted by his experience.[6] Some installations must be presented precisely in accordance with the indications of the artist in an exact form which is immutable. Other installations are open to interpretation (of the curator, conservator or viewer) and are changeable and dependent on the place, manner of presentation and context. The occasion for the widest interpretation of the object, but also the risk of its over-interpretation, takes place over its whole lifespan –when it is created, presented, re-installed or during conservation interventions.

Professionals

The lifespan of an installation is defined by its exceptional character. It begins life in the mind of the artist, then passes through stages of physical creation, existence in an institutional or extra-institutional milieu, and perception by its audience, but the story does not end there. The approach, knowledge and professionalism of the people who surround the work at every stage of its development determine the manner in which it will survive. The individuals responsible for the care and preservation of works of installation art have an extremely difficult task with regard to the characteristics and factors described above. On the one hand, they want to act in accordance with Ruskin's maxim, to fulfil 'the obligation of preservation (of) the objects, as we have no right to behave differently, since they do not belong to us, but to those that created them and to future generations'.[7] On the other hand, they are aware that new principles have to be adopted in order to preserve the authenticity of concept and expression leading to the original impact on the viewer. For collectors, directors of museums and galleries, curators, historians of art and conservators this is connected with a new approach to the issues concerning copyright, acquisition, exhibition, storage, transport, preventive care and, finally, conservation and restoration.

A different and complex approach

Why a new approach is needed

An installation work in semiological interpretation is a point of reference for the transmission of various kinds of codes and conventions of communication. These function as a complex of mutually influential signs referring to specific contexts. The incorrect approach, for example the replacement (or the lack) of the material of a work or the relationship between its elements in a manner that was in conflict with the artist's intent, can produce changes in the perception of those signs. It renders impossible the finding of their relationship to the associated codes which can destroy the meaning and value of the work. A proper assessment of the ontological, axiological and material layers brings a new awareness in the approach to installation art. Sometimes we have to accept the impermanence (predicted or contingent), or the necessity of preserving the work in a form that differs from its original one. The

6 Merleau-Ponty, M. 1998. *The Phenomenology of Perception,* London: Routledge.

7 Ruskin, J. 2002. 'Lampa pamięci', in: Kosiewski, P. and Krawczyk, J. (eds.) *Zabytek i historia,* Warsaw: , p. 109.

pluralism of the conception and material visible in installation art reveals the need to create a manner of thinking about the preservation of its heritage and the necessity of finding new resolutions and tools to analyse it.

The challenges for conservation

The protection of cultural property and artworks through the activities of conservators assumes the preservation of their authenticity. This principle concerns preserving in unfalsified form the material, structure and conception of the work. In the case of older works of art, the conservator works with objects constructed in relatively permanent materials, and where the deterioration processes have already taken place. Their conservation is intended to preserve and prolong the life of the object which comprises the work of art. In installations, the materials used and their combinations are always different, most frequently they do not belong among the material typically used by artists, and the destruction and ageing processes have been usually programmed by the artist and are an inherent quality of the work. The determination of the state of preservation of the material layer is sometimes impossible due to its changeability.

The doctrines that guide the conservation of traditional art which have been arrived at as a result of many centuries of experience exhibit in several areas an inability to be transferred to works of installation art. These include the obligation to preserve all of the original material, a minimum of intervention, the inability to replace original elements, the differentiation of new elements and the reversibility of the actions undertaken. In addition, this applies to the lack of the perceived need for understanding 'external' factors such space, place and sensual stimuli.[8] This illustrates the necessity of the reformulation of the rules of conservation through critical analysis while taking into account the ethical imperative, as well as aspects which have been until now excluded. The conservation and restoration of the material of an installation must be carried out not for its own sake, but for the preservation of the meaning the creator used it to transmit, which is continued by the process of aesthetic reception by the viewer. Otherwise attempts at preservation can lead to the artificial 'freezing' of a given state and undesirable fetishism. The requirement to treat each work individually which has for long been advocated in the conservation of more traditional forms of art, must here be respected to a much greater degree.

A multifaceted approach

The actions of the conservator are 'acts of criticism' which lead to the creation of a new aesthetic quality, and thus involves a great responsibility. The huge diversity of installations requires interdisciplinary analysis of the material as well as the ontological and axiological spheres, through an approach involving the history of art, philosophy and ethics as well as the theory and practice of conservation and restoration. It creates a background for defining the ideas and values embodied by the work as well as its character as seen from the point of view of its relations, processes, context and the meaning of the material. And what is new but extremely important in order to recognize many things in accordance with the intentions of the artist, is the importance

[8] A development of the arguments given in the publication by Weyer, C 2006.

of having properly conducted professional interviews with the artist. The wider range of different issues requires collaboration between specialists from different disciplines. The most 'pluralistic model of cooperative research'[9] in the field of modern and contemporary art is INCCA,[10] through its platform for sharing knowledge and experience.

Having studied and analysed an object, the conservator defines the decision-making process and then selects a course of action on the basis of the character of the object; this action could range from preventive activity to active interference. The conservator acts as an advocate for the work during the processes of acquisition, presentation, transport and storage. Over the course of the rest of its 'life', the condition of the object is monitored and the effects of the passing of time, human acts and unfavourable conditions are countered if necessary. The work of conservation or restoration must sometimes be carried out in a manner that differs from conventional methods. The conservator is the interpreter and executor of re-installation, reconstruction, replication or emulation. The documentation that is compiled for artworks of this type is much wider in scope than that of more traditional forms of art, and in the case of installations, its role is a specific one. In the case of works that are ontologically directed into the conceptual sphere, 'preservation by documentation' is conducted, and this replaces the physical work or its elements.

To achieve this, it is necessary to use knowledge from many academic disciplines in connection with technical analysis, while remaining in direct contact with the work and its creator.

Conclusion

The character of installations obliges us to preserve not only the object itself, but the experience which it provokes. The authenticity of an installation is situated in the maintenance of the unity of all the elements that comprise the work in the form in which the artist arranged them: the correct relationship between the material elements (belonging to different artistic and non-artistic disciplines) and the intangible elements, spatial relationships and places as well as the interactions between the work and the viewer. These elements are invisibly linked with each other and create, throughout the whole lifespan of the installation, a complementary but dynamic whole. This defines the unique value of a work of art.

The magnificent variety and individual character of installations is a decisive element determining their lifespan. A work created by an artist with a given intention and then curated based on existing documentation, analysis and treatment by professionals is completed by the experience of the viewer. How can we save that for future generations?

I will answer with the use of an anecdote. A young journalist was conducting an interview with the Polish Nobel-Prize-winning poet, Czesław Miłosz. She had beautiful eyes, but intelligence was not one of the things one could read in them. She asked the first question: 'What do you think of transience?' Miłosz groaned, settled deeper in his chair and replied: 'I am against it.'

So are we. The expression of this is in the care with which we surround the heritage of our times.

[9] Wharton, G. 2009. 'INCCA, The Model of Conserving Contemporary Art. Conservation Perspective', *The GCI Newsletter 24_2*, www.getty.edu/conservation/publications/newsletters/24_2/incca.html accessed (accessed 27 October 2010).

[10] INCCA – International Network for the Conservation of Contemporary Art, www.incca.org.

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John Bock, *Mien Gribbohm Wien*, 1998. PHOTO Saporetti Immagini d'Arte.

Marina Pugliese

In a recent presentation at the Glasgow conference on authenticity, researched by myself in collaboration with conservator Barbara Ferriani, we defined installations as a 'medium in evolution'.[1] In fact, considering that installations are complex works characterized by the co-existence of multiple components in the context of a particular space and the physical presence of the viewer, chance and modification are its poetic elements.

When installations are created at our museum for specific exhibitions, curators collaborate with the artist in order to find the best solutions for the location and the given space. On occasion, the curator has some personal influence on the artwork, and in one case I have even suggested the title of the artwork. This collaboration depends on the artist's personality – some artists simply need to discuss their work, while others are more insecure and need more 'assistance'. However, if we can't define this process as a co-production, it is, at the very least, a cooperation, and a pretty exciting one at that!

When dealing with installations, the display of the work and the way in which it is presented are part of its syntax. As long as the artist is alive, installations can be considered as 'a medium in evolution'. With reference to this last point, when an installation enters the collection of a museum, we suggest that a complete specifications form be drawn up to include a detailed record of the work's composition and status quo at the time of the acquisition. Ideally this document should also serve to stimulate the artist to define an outline of the 'potential in evolution' of his work well into the future, and to establish the limits of authenticity within a set time frame. In the case of installations, the focus is not only on the use of different materials but also on the recreation of changing relationships between the components of the artwork and the space in which it is installed. Recently, an MA thesis was written on the documentation of Mien Gribbohm Wien, an installation created by John Bock in 1998, exhibited in a second version in Milan in 2000, and then bought by the city for the Museo del Novecento. It is a complex artwork, both from a conceptual and material point of view, consisting of perishable materials and an essential intangible component – a live performance recorded and replayed on video. The thesis succeeded in realising a complete philological reconstruction of the work through the analysis of previous installations and the evaluation of all components, objects and video elements. The research was done in collaboration with various professional contributors: the museum's director and curator, the registrar and the collection's managers as well as conservators, archivists and video conservation specialists. Collaboration with John Bock himself was essential and he was interviewed in his studio in Berlin in order to clarify the complex construction and conservation issues inherent in this work.

[1] International conference, *Art Conservation and Authenticities. Material, Concept, Context*, University of Glasgow, 12-14 September 2007.

Part 2

Installation Art and the Elastic Form

Vulnerabilities and Contingencies in the Conservation of Time-based Media Works of Art

Pip Laurenson

Abstract

This chapter explores the implications for conservation of the fact that, unlike traditional forms of fine art, time-based media works can be removed from the media in which they were made and the conditions and technologies originally used for their display. Physical contingency does not mean that the media and the conditions of display are incidental. How decisions are made regarding the significance of the medium is explored with reference to the use of film by Tacita Dean, Bruce Nauman, Dan Graham and Rosalind Nashashibi. The chapter concludes by examining the influence of the market on these judgements, and the role of conservation in documenting and presenting the history of decisions made about the significance, or otherwise, of these relationships.

Introduction

The growing interest in artists' films and videos made in the 1970s has meant that some early works are now entering the market for the first time. This raises questions about whether their identity should be determined by the historical period in which they were made, by the history of their display, or by the moment at which they are redefined for the market.[1] This chapter looks at the particular vulnerabilities of time-based media works and the relationship of these questions to their conservation.

Vulnerabilities, conservation and the relationship to the medium

In addition to physical deterioration, time-based media works are vulnerable to two types of change. They can be stripped away from the medium in which they were made and they can be divorced from the conditions and technologies of their original display.

Whereas traditional artworks rely on chemistry and physics to bind them to their supports, the relationships that tie time-based works to a particular set of parameters are constructed. The material support of an artwork has traditionally been the focus of fine-art conservation. Charged with the responsibility to minimize loss and damage to the material elements of a work of art, the suggestion that conservation might need to broaden its sphere of interest sits, somewhat uncomfortably, as a threatened loss of clarity to its traditional remit. Within the conservation of modern art, the formalism characterized by Clement Greenberg, with its reductive focus on the physical medium, was in accord with the concerns of traditional conservation. A conservation tradition

[1] For a broader discussion of the concept of identity for time-based media works of art see Laurenson, P. 2008. 'Authenticity, Change and Loss in the Conservation of Time-based Media Installations' in Schachter, J, Brockman, S, (eds.) *(Im)permanence. Cultures In/out of Time,* Pittsburgh: Center for the Arts in Society, Carnegie Mellon University.

that looked to science and the analysis of materials to support judgements and conservation decisions sat well with a critical tradition that focused on the materials of art and excluded as insignificant any extra-artistic references or concerns.. However, in the art that reacted to Greenberg, the relationship to the materials changed, rendering the material form, as Robert Morris famously put it, 'less self important', with aesthetic terms of reference existing as 'unfixed variables that find their specific definition in the particular space and light and physical viewpoint of the spectator'.[2]

When artists employed found or industrially fabricated objects in the creation of their works, their relationship to and interaction with their materials changed radically. However, despite this, an object remained the result. This enabled conservation to carry on as if the conservation object had not undergone this radical change.

Lying somewhere on a continuum between performance and sculpture, the time-based media installation lacks a material object that can be identified as 'the work', undermining the traditional notion of what constitutes the object of conservation. The relationship between the particular aspects of the medium and the identity of the work is not a given, but is both constructed and uncovered in the development of the identity of the work. This process has a particular relationship to time. Given that time-based media works are dependent on technologies that become obsolete, the myth of the timeless art object is quickly exposed. The work's identity comes rapidly into question as external pressures for change take hold and decisions as to what can change and what must remain have to be made. For example, a once-ubiquitous piece of equipment like a slide projector is now an object for specialist enthusiasts, and a technology that once symbolized a connection between art and the everyday is now obsolete. In the conservation of artists' installations that employ time-based media, the fact that the work only truly exists in its installed state refocuses the conservator's attention on the intangible and the temporary. However, this temporary quality may not have been apparent, or of interest, to the artist when making the work, since installing it in the gallery gives the illusion of completing it in a form that will persist.

The incidental and the significant

Entering a corridor within a museum to see Bruce Nauman's *Art Make-up* (1967), I hear the sound of a 16mm film projector. Once inside the room, however, I see four images that were shot on film but are now on video. The contrast is low; if you look closely, you see that the surface of the image is constructed from the pixel blocks of a liquid-crystal panel of a video projector and the picture has none of the clarity of a film image. The caption reads:

16mm film 4 parts:
No. 1 White, color, silent, 10 min.
No. 2 Pink, color, silent, 10 min.
No. 3 Green, color, sound, 10 min.
No. 4 Black, color, sound, 10 min.

The first line refers to the medium in which the work was made and originally shown, but the addition of 'sound' to the description of the third and fourth channels refers to the later addition of the sound of a film projector to the

[2] Morris, Robert. 'Notes on Sculpture Part II', *Art Forum*, 5, 1966, pp . 22-23.

video. The message is mixed.
Although it is still possible to see that the work was shot on film, the direct link to the original technology of its production and display has been lost, bar the addition of the sound of the film projector to the otherwise silent image.[3] Nauman gives the following reason for his decision to add the soundtrack of the film projector to the video image:

Pip Laurenson: Was the decision made because of the interest in the experience of the viewer? The sound being part of that?

Bruce Nauman: Yes because no sound is also different – silent projection – and because it is a reproduction of the original rather than the original, it's an odd thing to think about. I wasn't particularly interested in having … the projector [visible] on the DVD, that wasn't part of the piece necessarily.

PL: So, in a way, the aspect that you originally experienced was only the sound because the projector was out of view?

BN: Yes.

PL: But I guess some people would know they are looking at …

BN: … a film rather than video.

PL: Would you rather it was shown on film? Does it bother you when those sorts of links get broken down? Some artists talk about authenticity in this context.

BN: The technology is still not that hard to come by, so you could do it that way if you wanted to. I think it's when you're dealing with having to maintain some technology that pretty much has gone, you have to decide whether that's really part of the piece or if it can be changed. … There's a certain kind of precision in film that is different to video and if it's important to maintain that then you have to pay attention to it.[4]

Not all change is loss, and most forms of loss – whether it concerns the fading of a watercolour or the distortion of a Naum Gabo sculpture rendered in a mutable plastic – are incremental. Nauman succinctly sums up the issue: 'You have to decide whether that's really part of the piece or if it can be changed'.[4] In the context of *Art Make-up* (and these decisions are work-specific), he came to the conclusion that film was not a necessary part of the work but that the sound of the projector was. This seemingly minor decision points to the extraordinary capability of time-based media works of art to allow for decisions to be made to save certain elements of the originating medium whilst discarding others. What this quote from Nauman demonstrates is that artists are able to define the relationship of their work to their

3 In addition to the obvious signs, for example vertical film scratches, grain or dust, there are a number of other indicators that a work has been shot on film. These include the way in which the colour is rendered in film which characteristically emphasizes the midtones, the greater contrast due to the light response of film, and the sharper image. Film will characteristically be shot with a shallower depth of field. To a well trained eye it may also be possible to detect the effects of converting a 24-frames-per-second moving image constructed from complete frames into an interlaced video signal which is either 25-frames-per-second for PAL or 30 frames per second for NTSC.

4 Bruce Nauman, unpublished interview with Pip Laurenson, Bryony Bery and Jane Burton, Tate, London, 2004.

medium and, to some extent, can pick and choose what to save and what to discard.[5] What is considered to be the work can be physically peeled away from the technologies originally used to make and display it and, although qualitatively different, the work remains recognisable. Residues from these technologies remain: a particular quality in the colour, a certain layering of textures, film scratches, audio pops or constraints of duration.

There is obviously something in the logic of these reproducible media that allows, and in fact, necessitates, these shifts between formats and technologies. For example, in the world of analogue media, the negative is distinct from the film print, the master video from the sub-master; the format the work is shot on is not the same as that used for display. The digital clone collapses older analogue distinctions, and the fast-changing technological environment races from a new format to obsolescence well within an artist's lifetime. Add to this the broadening of the scope of what can be considered the artistic medium to include a social situation constructed by the artist or, as claimed by Rosalind Krauss, the use of fiction,[6] and we see how the focus of conservation might mirror this shift to become liberated from the purely material.

The conservation of time-based media works of art

The conservation of time-based media works is organized around the articulation of the decisions (to paraphrase Nauman) of what is part of the work and what can be changed. Its role is to ensure that we can continue to display the work in the future and that what is displayed can be judged as the 'same' work. Here, as in the performance of musical works, the concept of the 'same' is understood through a notion of identity reached through 'work-defining properties'. The nature of these work-defining properties will depend, in part, on the artist and how they chose to specify the conditions for their art.[7]

The conservation of film and video requires pre-emptive activity from the moment a work is made. At Tate, for video works, an archival master is produced from the best available artist's master and held in a dry, cool environment on a professional uncompressed format, which is then migrated (transferred to new stock and if necessary new formats) every five to seven years. In the next few years, we will see a move to the storage of uncompressed video as data on servers and data-tape formats such as LTO (Linear Tape-Open is a magnetic tape format for data using open standards).

At Tate it is not unusual to show 16mm film works in the gallery for periods of either six or twelve months. This requires the production of a large numbers of prints. Since it is unlikely that the artist will relinquish their negative, especially in the case of an editioned work, Tate acquires an inter-positive, two inter-negatives and two check prints, as well as a print that has been supplied by the artist as reference for grading[8].

In addition, the sound elements of the film are archived as a digital file and an optical-sound negative. These components enable Tate to work with the few remaining laboratories processing 16mm film to produce accurate and good-quality prints. The archival material for film is kept in a specialized sub-zero humidity-controlled storage space.

While many technical challenges in the preservation of film and video have

5 Interestingly, Nauman awards himself no special authority over this decision, leaving open the possibility that others might make a different decision.

6 Works of art which create social situations have been discussed by Nicholas Bourriaud under the term 'relational aesthetics' (Bourriaud, N., 2002. *Relational Aesthetics*. Paris: Presses du Reel. Translated from French by Pleasance, S. and Woods, F.). For an exploration of the idea that Marcel Broodthaers' medium is fiction, see Krauss, R.E. 2000. *"A Voyage on the North Sea": Art in the Age of the Post-Medium Condition*. London: Thames & Hudson. pp. 46-47.

7 Laurenson, P. 2008. 'Authenticity, Change and Loss in the Conservation of Time-based Media Installations' in Schachter, J, Brockman, S, (eds.) *(Im)permanence. Cultures In/out of Time,* Pittsburgh: Center for the Arts in Society, Carnegie Mellon University.

8 In the production of standard film elements it is necessary to go from a master negative to an interpositive to an internegative to a print. An interpositive is a high-quality positive made from the master negative. An internegative is made from an interpositive and, with an optical sound negative, can be used to produce combined prints.

[9] Dan Graham describing *Sunset to Sunrise* (1969) in an interview by Eric de Bruyn in Alberro, A. (ed.) 1999. *Two-way Mirror Power: Selected Writings by Dan Graham on His Art*, Cambridge, Mass. and London: MIT Press, p. 98.

[10] Ibid., p. 105.

been successfully addressed, new challenges, like the impending obsolescence of film and the shift to the use of computers in the production of an interactive video environment, constantly emerge. Although the preservation of the media elements is central to the role of conservation, the greater challenge is to understand what, of both the tangible and intangible elements, it is that we are trying to preserve. There are technical and conceptual problems concerned with what can be changed and what must be saved. The criteria used to decide what is important to preserve are what render the conservation of time-based media artworks in a museum different from that of similar media in an archive. Part of that difference is that the significance of the medium goes beyond its role as a carrier for an image.

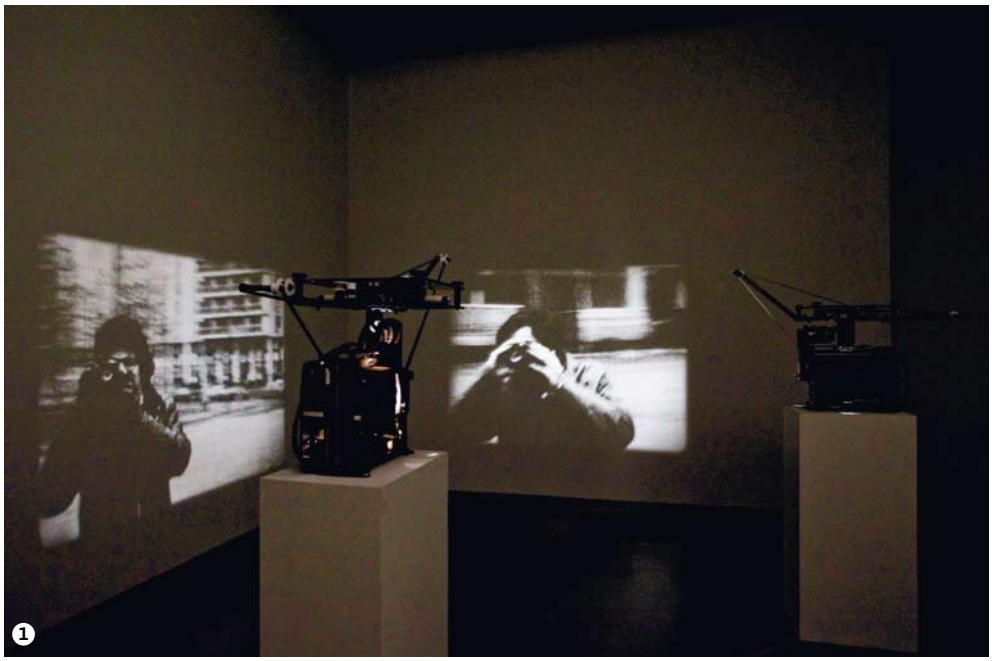
Meaning and the medium

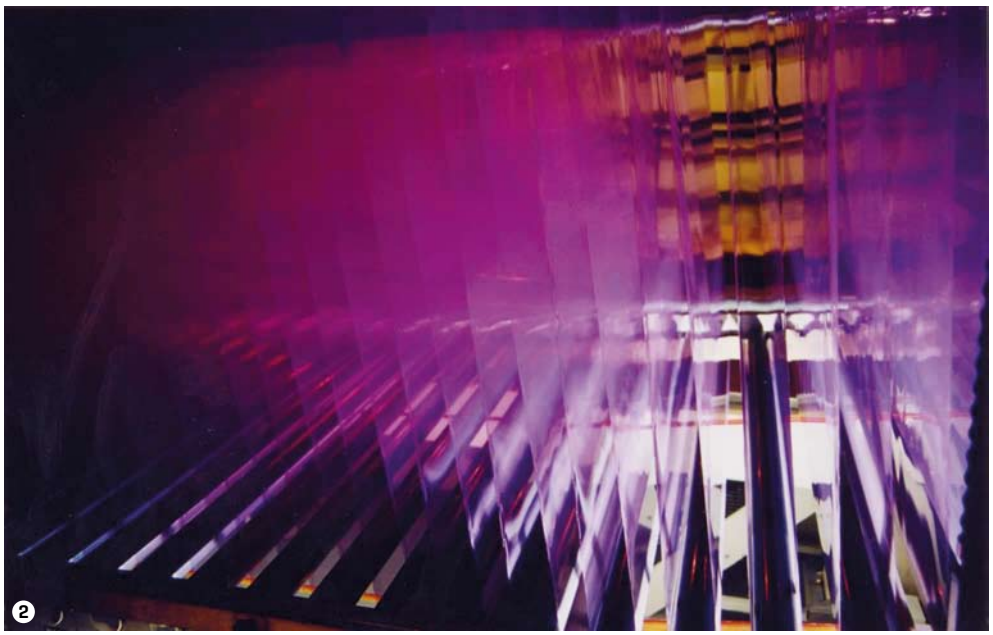
It is about life…which is what film is about. Dan Graham[9]

The value that an artist finds in a particular medium for a time-based work will determine his or her attitude to whether it is important that the relationship with that medium is maintained in future displays. Decisions made to use a medium when it is ubiquitous are very different from those made when it is on the verge of obsolescence. In the early 1970s, artists like Dan Graham were working with film and also beginning to experiment with video. At this time it was video that was large, cumbersome, expensive and constraining compared to 8mm and super-8mm film, which could be sent away for processing at the local pharmacy and came back the next day. For Graham, his use of film was about immediacy and the everyday.

> I was attracted to film for the same reason I was attracted to the photos of conceptual art. It was because you could use a fixed-focus instamatic camera and you had these very inexpensive Technicolor loop projectors. So the presentation was simple, basic, elementary, cheap … The great thing about the films was that I could do them outside the studio. They became landscape pieces. It's an advantage that you couldn't get with video at the time.[10]

The connotations of 8mm film in the 1970s are very different from the use of film by an artist today, in the dying days of the medium. Now it is video that is ubiquitous, instant, easy to use and cheap.
Some artists working today may decide to use film as a material in making a particular work but not as a display medium. For example Rosalind Nashashibi, when talking about her work *Hreash House* (2004), speaks of how the process of shooting on film infuses structure and discipline into the way she works. Using a 100-foot film magazine running at 24 frames per second means that each magazine will capture approximately 2.5 minutes of footage. Nashashibi describes this engagement as a performative aspect of working with film. This, and the fact that film does not allow her instant playback of





❶ Dan Graham, *Two Correlated Rotations*, 1970/72, Tate © Dan Graham

❷ Tacita Dean, *Kodak*, 2006, Tate © Tacita Dean, courtesy Frith Street Gallery, London and Marian Goodman Gallery, New York/Paris

her footage, helps her to capture the energy of a situation.[11] However, in this instance she decided to display the work as video.

Of artists currently working in film, it is Tacita Dean's installations that are completely embedded in the apparatus of the medium. For her, film is about time and the trapping of light within the physical strip of 'celluloid'.[12] She also consciously employs an analogue display medium through which you can hear time passing like 'the prickled silence of mute magnetic tape or the static on a record'.[13] Dean is unequivocal about the profound connection of her works to film. From the moment she conceives of a piece, it is developed within the constraints of film. In contrast to the passive eye of video, every element of film is actively constructed, decisions have to be made about time, light and focus and the sound have to be constructed and added as a later part of the process. As Dean puts it, 'It's a medium of illusion and artifice'.[14] Because of the centrality of film to her work, Dean has been forced to confront the impending obsolescence of her medium. 'Obsolescence is about time in the way film is about time: historical time; allegorical time; analogue time'.[15]

There is a marked contrast between the precision with which artists are currently choosing film as a medium and the carelessness of a discourse within which 'film' and 'video' are used interchangeably within the art market. Here the legend '16mm film transferred to DVD' has become a common if impenetrable statement. It might be a reflection of how the work was made, a comment about the history of the work, evidence of an act of what has been termed 'remediation'[16] or a description of a work made at an earlier time and now repackaged in a convenient collectable form for the purposes of sale. A video may also be called a 'film' to give it a sense of seriousness and weight, even if this bears no relationship to either its natal or actual material reality.

Within contemporary art museums, historical accuracy is not highly valued with regard to media technologies. Some artists may feel that using technologies that have now become rare is out of keeping with the spirit in which the work was made, tying a work anachronistically to a particular time. It is unclear whether the contemporary art museum has a responsibility to represent this relationship to history in the way the work is displayed. There is understandable curatorial uncertainty about whether these ties are incidental (or even the criteria used to make these judgements, with some very clear exceptions where the artists themselves have insisted on these relationships being maintained.

As with the relationship to its medium, the relationship of a time-based media work to the technologies and conditions of display are mutable. This means that if they are considered to be part of what defines the work, then this must be explicitly specified. At the moment when the work is made, in the majority of cases, the fast-changing technological environment on which these works depend is invisible. For artists to construct these relationships they need to be prompted to imagine the future and often this is a function of being collected by a museum.

The time scale of the museum is beyond the scope of what is customarily considered by artists entering a collection and a consideration of the historic may well be beyond the point an artist wants to consider the future of their work. At some point, these challenges become the responsibility of the

[11] R. Nashashibi, unpublished interview with Pip Laurenson, Tate, London, 2006.

[12] 'Celluloid' is used here in the generic sense of photographic film rather than the specific original sense of cellulose nitrate and a plasticizer such as camphor.

[13] Tacita Dean quoted in Baker, G. (ed.) 2002. 'Artist Questionnaire: 21 Responses', *October*, 100, p. 26. Cambridge, Mass. and London: MIT Press.

[14] Tacita Dean quoted in Gronlund, M. 2006. 'Artworker of the week No. 60: Tacita Dean' (Online), *Kulturflash*, 6 July 2006, retrieved on 25th September 2008 from www.kultureflash.net/archive/171/priview.html.

[15] Tacita Dean quoted in Baker, G. (ed.) 2002. 'Artist Questionnaire: 21 Responses', October, 100, p. 26. Cambridge, Mass. and London: MIT Press.

[16] Bolter, J.D. and Grusin, R.A. 1999. *Remediation: Understanding New Media*, Cambridge, Mass. and London: MIT Press.

museum. For example, Dean makes a distinction between the obsolete and the rare, the former being a concept which is central to her work and the later being something that no longer interests her.[17] This shift will purely be a factor of time. Problematically, with technology-based works, potentially less than the time it takes for a work to move from a contemporary art museum to an historic art museum.

Just as the narrow understanding of medium as material support has been challenged and subsequently expanded, this extended understanding of the notion of the medium has catapulted conservation into broader domains.

[17] Tacita Dean quoted in Baker, G. (ed.) 2002. 'Artist Questionnaire: 21 Responses', October, 100, p. 26. Cambridge, Mass. and London: MIT Press.

Conclusion

The conservation of time-based media works becomes a question of relationships and dependencies; for example, the importance of each element of the work as displayed at a particular time in a particular place to its enduring identity and certain logical relationships, such as the relationship of the medium in which the work was constructed to the way in which it is displayed. Although the artist is not the only voice in determining what is important to preserve in a work, it is certainly the primary voice early in its life. Artists working within the context of museums and a buoyant art market are likely to be asked questions relating to the future of their work early on. Where this discourse becomes problematic is when these questions are asked retrospectively about works made within a different context, when there was little market for them and few museums were buying artists' film and video.

Many works were originally created and shown in a non-museum context and come to the museum in a secondary form, or derivative. Others were never intended as public pieces but are now repackaged for a buoyant market. In the majority of cases, the responsibility is passed to the artist to say what must stay and what can be changed. The media and conditions of display may be physically contingent, but this does not mean that they are incidental. In many ways, time-based media installations are presented in our museums as if their material identity were as defined and persistent as a painting. It is as though their absorption by the museum and their integration into collections serves to conceal their different nature. In navigating this territory, conservation must not only continue to preserve the ability to display these works, but must also record the back story for decisions made about the forms in which they are realized, both now, in the past and in our projections into the future.

FABRIZIO PLESSI'S *LIQUID TIME II* AT THE ZKM | CENTER FOR ART AND MEDIA KARLSRUHE: (PART I) The Ravages of (Run)time – Maintenance of Electronic Hardware During Long-term Presentation

Thomas Zirlewagen

Abstract
One of the contributions of the ZKM | Center for Art and Media Karlsruhe to the *Inside Installations* project was an extensive case study on the kinetic video sculpture *Liquid Time II* (1993) by the Italian artist Fabrizio Plessi.[1] The research is presented in two chapters. Part I summarizes results of the case study by focusing on the maintenance of electronic hardware over a two-year presentation of the artwork. Malfunctions of the video equipment and electronic components caused by mechanical stress required increasing care and treatment, leading to some technical modifications to preserve the artwork's functions. Part II details the technical concerns of the media elements and the conservation conducted during the case study research. It provides an analysis of problems associated with the cathode ray tube TVs and their mechanical relationship with the sculpture.

Liquid Time II

Water as a primal material is one of the principal subjects in many of Fabrizio Plessi's performances, videos and installations. Since the 1970s he has pursued a concept called *tempo liquido*, investigating the potential of water, sound, movement and video as allegories for the circle of floating time and for universal questions of materiality and representation. In 1993, his examinations culminated in the monumental video sculpture *Liquid Time II* that was realized for an art exhibition at the Internationale Funkausstellung (IFA) in Berlin and subsequently acquired by ZKM shortly afterwards (Fagone 1983, Van der Koelen 1998) ❶.

The artwork comprises a 5.68-metre-high steel wheel rotating above a 17.76-metre-long steel tank filled with rushing water. The sculpture resembles a rusty mill wheel, but instead of water scoops there are twenty-one colour cathode ray tube (CRT) TV sets showing all the same video of cascading water. The steel structure is composed of more than a hundred individual pieces – as well as several hundred bolts. The central water tank is made of five main sections. One end is surrounded by a large base measuring 8.14 metres long and 3.90 metres wide. Two supports are carrying the wheel, which itself consists of seven segments and is chain-driven by an electric motor.

[1] This study was conducted by a team of conservators and technicians initiated by the author, who was head of conservation at ZKM from 2002 to 2006. It was taken over by Fenna Yola Tykwer, media art conservator at ZKM from 2006 to 2010.

❶ Fabrizio Plessi, *Liquid Time II*, presentation 2004-2006 at ZKM | Media Museum. PHOTO Franz Wamhof.

A gearbox ensures the steady rotation speed of one-and-a-half revolutions per minute. The water in the tank is circulated by an electric pump.
Liquid Time II is designed as a single-channel video work: all CRTs in the wheel show the same video simultaneously played by a laserdisc player installed inside the base (PHILIPS Laserdisc Player 22 VP380 ®). The electricity supply and the video signal are transmitted from the static substructure to the turning wheel via a slip ring unit mounted on the wheel axle. Beside the TV sets (PHILIPS Matchline 100 ®) the wheel houses two video distributors/amplifiers (Klotz 1997).

General conservation issues

From the outset this artwork presented a wide spectrum of conservation issues with respect to the construction materials as well as to the technical equipment and its functionality. An artwork operating with 3,400 litres of water can only be exhibited in a museum taking into account certain safety precautions. Already during reinstallation in 1997,[2] extensive modifications had to be made to isolate the water circuit, namely the installation of a double-walled liner inside the tank. Furthermore, in 2004, two electronic water sensors were installed in the substructure to provide continuous monitoring for leaks. Due to evaporation, the water must be refilled at regular intervals to maintain the correct level. Evaporation also leads to a permanent enrichment of mineral salts – mainly calcium carbonate – which deposit as mineral crusts in the water trough. The salt content has been minimized since 2004 by using partially demineralized water with a residual content of fifty milligrammes of calcium ions per litre.[3] A further problem is water pollution by dust from the air and the resulting biofouling. The decision was taken not to use biocide additives but to replace all the water at regular intervals of six weeks and to clean the liner. *Liquid Time II* has a sensitive, artificially rusted surface with an area of more than 100 square metres, which complicates handling during assembly and maintenance work. Unprotected steel surfaces on the inner sides of the trough are regularly wetted by splashes, which then dry off again. These continuous wet/dry cycles have caused rapid corrosion in some areas.

Conservation issues of the electronic hardware

The kinetics of the wheel are a source of potential damage. All components are constantly rotating full circle and are thus exposed to continuously changing mechanical stresses. Some of the equipment in the wheel for video transmission and supplying power were already replaced in 1997 because of numerous issues after the installation had been operating for a relatively short time in 1993.[4] Soon after the artwork was restarted in 2004, we were again confronted with a series of malfunctions and damage affecting the electronic equipment in particular. There were malfunctions such as flickering or temporary blackouts with the TV sets; this occurred with individual units, connected groups or simultaneously on all screens; permanent blackouts were also observed.

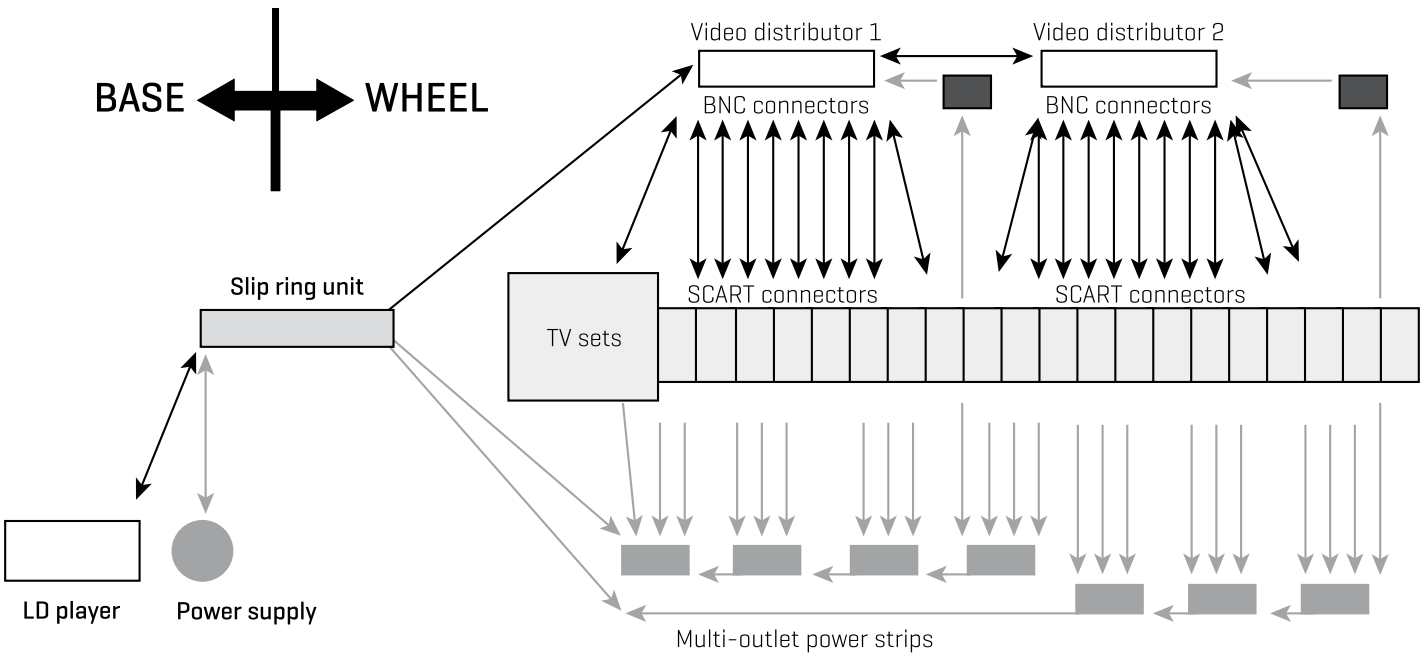
[2] The first presentation under museum conditions was from October 1997 to August 1998.

[3] Average Karlsruhe drinking water contains 180 milligrammes of calcium ions per litre.

[4] *IFA 93* in Berlin and MultiMediale 3 in Karlsruhe lasted about 10 days each.

Television sets and wiring

There were a number of reasons for these symptoms, but the most frequent source of error was loose contacts. Inside the wheel, the various components are linked via numerous cables and connectors that amount to more than a hundred plug-type connections for the power supply and signal transmission ❷.



❷ Scheme of the video equipment and power supply of *Liquid Time II,*. ILLUSTRATION Thomas Zirlewagen.

The SCART plugs connected to the TV sets were originally reduced to the actual number of pins required to transmit the signal, that is, two or three pins instead of twenty pins. Because of this, they are not properly anchored in the equipment sockets and become loose from time to time. Inadequate contact in electricity supply plugs leads to overheating and scorch marks in some cases so that the plugs and sockets have to be replaced. The loose cable connections can generate strong voltage fluctuations in the power supply, which in turn causes overloading and damage to sensitive electronic components such as the power supply units of the TV sets as well as parts of the beam deflectors in the cathode ray tubes. As a consequence, the equipment has to be removed in order to be repaired in a specialist workshop.[5] The rotational stress also causes the breakage of cable strands and fatigue fractures in the soldering on the plugs as well as on the TV circuit boards.

[5] ZKM owns two spare TV sets for *Liquid Time II* that can be used during repair work.

The slip ring unit

A further frequent source of malfunction is the slip ring unit on the wheel axle. This device operated reliably during the first six months of the presentation. Then the slip rings, made of a hardened non-ferrous metal alloy, began to show ever-increasing signs of wear. Abraded metal and soiling caused interruptions

in the transmission. As the two poles of the video signal are each connected to only one slip ring, the probability of disturbances in the video signal is high. The sliding contact needed cleaning at increasingly shorter intervals – up to twice a week. This meant removing the protective steel screen on the wheel support and dismantling the housing of the slip ring unit. The contact rings were then cleaned with compressed air and tissues. When malfunctions due to the slip ring unit got out of hand, solutions were sought that would obviate the need for this device to transmit the video signal.[6] After operating for about eighteen months, the contact lips on the slip rings were so worn that it was feared they would break off altogether. A repair or alternative solution for this component was now unavoidable. In cooperation with a specialist company[7] it was decided to design a new slip ring unit in a way that would maintain the original appearance of the object. It was possible to integrate the new slip ring assembly into the housing of the original unit so that the change in the outward appearance was minimal.

Maintenance – a constant challenge

From today's perspective, it is easy to describe all the malfunctions and damages. In practice, however, such troubleshooting is often a very complex and time-consuming process for both technicians and conservators: first of all, the external symptoms have to be established. The type of malfunction helps to narrow down the potential source. However, the elimination process gets more difficult if there are several possible causes. Numerous hurdles must be crossed between theoretical localization of a problem and confirmation of the cause on the work itself.[8] Some sources of error can only be localized after a series of systematic tests.

For *Liquid Time II* error diagnostics as well as regular maintenance activities, such as changing the water and cleaning, required a remarkable amount of manpower. Although ZKM as an institution for media art is in the fortuitous position of having a large permanent team of specialized technicians, this work was sometimes very challenging. The financial outlay for external specialists, repairs or procurement of spare parts was considerable. This also directly affects the work of conservators. Conservators of media artworks are faced not only with developing conservation precautions and remedying acute damage, they must also consider whether particular measures that reduce maintenance work and costs can be justified, even if they are associated with a (major) modification of the artwork. Each replacement of original components does indeed represent a gradual alteration of the artwork, regardless of its outward visibility.

On the basis of experience gained from the two-year presentation, ZKM is now able to formulate precise conditions for exhibiting *Liquid Time II* and to give a realistic estimate of the costs of loaning the work out, including transportation, assembly and, in particular, maintenance during operation. So far, loan requests from other institutions have been withdrawn because the terms and conditions, which aim to ensure long-term preservation of the artwork, have exceeded the expectations or capabilities of the respective institution. This should not be interpreted as ZKM not being interested in loaning the work.

6 These issues are discussed in detail in the following chapter.

7 RIE-TECH, www.rie-tech.de (accessed September 2010)

8 Before working on the wheel, the sensitive rusted surface of the base has to be covered for protection and a working platform has to be built above the water tank. Access to the equipment and wiring inside the wheel is greatly hampered by the confined space in the structure.

Instead, it demonstrates a situation in which the outlay for a sustainable presentation of media art is still frequently underestimated or in which the capabilities of classical art institutions are strained to their limits.

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FABRIZIO PLESSI'S *LIQUID TIME II* AT THE ZKM | CENTER FOR ART AND MEDIA KARLSRUHE: (PART II) Technical Options and Limitations for an Authentic Reinstallation

Fenna Yola Tykwer

Introduction

Liquid Time II, a video sculpture by the Italian artist Fabrizio Plessi, was presented in a special Philips exhibition at the 1993 Internationale Funkausstellung in Berlin. The work was shown for the first time for an extended period (2004 to 2006) in the exhibition 'Masterpieces of Media Art' at the ZKM | Media Museum.

The sculpture comprises more than 100 elements joined together to form a metal structure that is eight metres long, four metres wide and five metres high. Its surface has been artificially oxidized with acid. An upright paddle wheel with twenty-one cathode ray tube TV sets is mounted above a long water trough. The wheel is driven slowly by an electric motor and continuously rotates about its own axis. The rear portion of the wheel is surrounded by a metal cover so that visitors can only see the TV screens from the side facing the water trough. The viewer sees water cascading from top to bottom on all screens; this visual experience is accompanied by the sound of approximately 1,500 litres of rushing water that is circulated by an electrical pump through the water trough.

Hardware components of the video system

The technical equipment used to install the work at the 1993 Internationale Funkausstellung (IFA) in Berlin was made available to Fabrizio Plessi by the Philips Art Programme. The video sculpture *Liquid Time II* uses a single-channel video without sound. The video signal to all TV sets is provided by the original laserdisc.[1] which is played on a laserdisc player.[2] The signal is transmitted to the twenty-one colour TVs[3] via a coaxial cable connected to a sliding contact in a slip ring unit. All the screens show the same picture: a black-and-white video of water flowing continuously from top to bottom. During reinstallation at ZKM in 2004, no fundamental changes were made to the technical set-up, except that a different laserdisc player was used because the original player was no longer available.

Problems with transmission of the video signal

After the artwork had been operating for almost two years, an examination in June 2006 revealed a continuous increase in disturbances of the TV picture. The screens showed spontaneous blackouts and disturbances. These distur-

1 Optical Disc Corporation®, recordable Laser Videodisc, PAL system, without sound, 17:55 minutes.

2 Laserdisc player 22 VP380 from Philips®.

3 Philips® Matchline 100, black & white mode.

bances always occurred simultaneously on the screens, which received their video signal from the video distributor at the same time. Furthermore, they occurred at a time when the housing of the slip ring unit was opened twice a week in order to clean the contacts. The signal disturbances continued to increase, despite regular cleaning. As this situation was not acceptable for the presentation, discussions were held to consider what options were available for transmission of the video signal.
Previous attempts to transmit the video signal to the TV sets via a wireless system had been unsuccessful due to interference of the signal by the steel structure and/or the moving steel wheel of the installation so that an optimum signal transmission was not possible. Another approach was to integrate the player within the rotating wheel; however, this option was not feasible due to the lack of space in the wheel and the large size of the laserdisc player. Furthermore, there were doubts as to whether the player would function correctly owing to the continuous 360° rotations.

Installation of the new video transmission system

Based on these considerations, ZKM decided to change the video system. A flash card player and three new video distributors were installed inside the wheel in such a way as to ensure that the new components of the wheel structure were concealed. This system allows transmission of the video signal without a sliding contact. The flash card player was then equipped with a flash card carrying a digital copy of the video sequence from the laserdisc.

Digitization of the laserdisc

The video material on the laserdisc was digitized in the ZKM | Laboratory for Antiquated Video Systems to produce an MPEG2 file that could be stored on the flash card. For long-term preservation the uncompressed archival submaster file was stored onto LTO (Linear Tape Open, Ultrium 3) back-up tapes. During digitization, it was discovered that the video material on the laserdisc was in colour and not in black and white. An inspection of the archival submaster BetaSP cassette in the ZKM archive, which Fabrizio Plessi had provided when the work had been purchased, revealed that it was also in colour.

Development of a picture malfunction

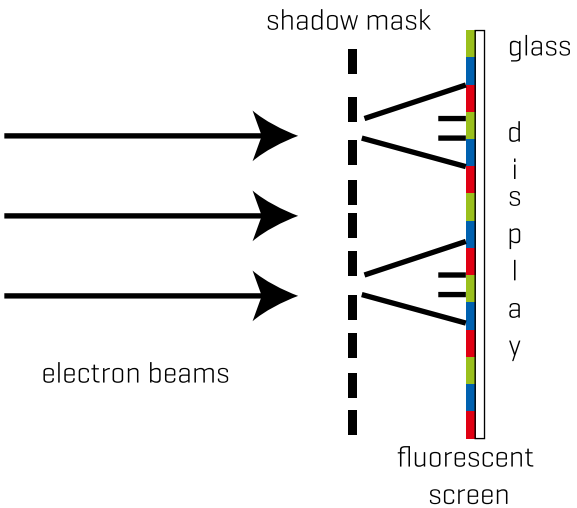
The prepared flash card was inserted in the player and the TV sets were switched over from black and white to colour. The installation was then started. Although the flash card player and the new video distributors worked satisfactorily, fourteen screens were showing a picture malfunction: coloured patches on the left-hand edge of the screen ❶. The other seven screens did not show any discoloured patches. Even after several restarts, only seven screens of the installation were free of this malfunction. These seven were always the TV sets that were facing the water trough, or in other words, those that were not surrounded by the metal cover of the wheel when the installation was switched on.

❶ Picture malfunction marked with yellow arrows showing the discoloured patches on the edge of the screen. PHOTO Fenna Yola Tykwer.

[4] Switching on the electricity supply.

Reasons for the picture malfunction

In order to generate a picture in a colour cathode ray tube, there are three electron beam sources, or guns, one for each of the three basic colours (red, green and blue). They are usually located next to one another in the neck of the cathode ray tube. When the electrons are emitted, they are steered magnetically by deflection coils so that they run across the entire screen, line-by-line. Colour TV sets use a thin metal screen known as a shadow mask to allow the electrons to strike the different phosphor layers in the fluorescent screen from different directions. This mask is located just in front of the fluorescent screen and ensures that the beam from an electron gun will strike only the appropriately coloured phosphor ❷. If the shadow mask has become perma-



❷ Diagram of how colours are produced. ILLUSTRATION Fenna Yola Tykwer.

nently magnetic due to external factors, it may deflect the electron beams to such an extent that the colours are rendered incorrectly on the screen (Rodekurth 1991, 222). The picture malfunctions in the installation are very similar to this effect. Magnetization of the shadow mask due to effects of the earth's magnetic field and its consequences (discolouration, divergence) are well known, which is why a colour cathode ray tube is protected by an internal or external shield. From a technical point of view, this can be a simple annular coil, half of which extends forwards outside the cover and the other half to the rear within the cover (Rodekurth 1991, 46). This coil, wrapped around the cathode ray tube, generates an alternating magnetic field that demagnetizes the shadow mask. This process is known as 'degaussing' and is carried out automatically by a colour cathode ray tube every time it is switched on.[4] This demagnetization is associated with a clearly audible noise which varies between a loud 'thunk' and a 'hum'. The demagnetization process is also visible because the displayed picture wobbles very noticeably for a moment or two. In our case, the twenty-one colour TV sets are degaussed when they are switched on. Unfortunately, the design of the water wheel prevents correct demagnetization of fourteen sets: the wheel carrying the TV sets has a metal cover and only the seven screens facing the water trough are not surrounded by this cover. This means that only these seven TV sets can be demagnetized

correctly and thus display the correct picture. The other screens still show picture malfunctions because the magnetic field around the metal cover remagnetizes the shadow mask after it has been demagnetized. However, the screens do not show a picture malfunction if the same video material from the flash card is shown in the black-and-white mode.

Considerations relating to the presentation

As a consequence of the aforementioned technical findings, ZKM decided to readdress the issue of how the installation should be presented. A discussion with Jochen Saueracker,[5] who had already installed the *Liquid Time II* sculpture twice in the past, revealed that he had purposely chosen the black-and-white mode for the TV sets because he had also observed the phenomenon of the faulty picture. When asked about this, Fabrizio Plessi answered as follows: 'It's very important to clear up that the colour of the water on the video must be coloured. The colour must be the natural colour of water as it has always been.' Unfortunately Plessi couldn't be interviewed further on this topic by the ZKM.

Research in the catalogue of works

This situation led to further discussions of this issue. The first topic was the laserdisc. It has a sticker labelled: Fabrizio Plessi 'PRATO'. Starting with this designation, a search was made for works with this title in Fabrizio Plessi's catalogue of works (Van der Koelen 1998). We found evidence that Plessi had been pursuing the 'Tempo Liquido' concept since 1970. Plessi developed various drawings and designs based on a performance in 1978.
The catalogue of works lists two similar installations entitled: *Liquid Time* and *Liquid Time II*. *Liquid Time* from 1989, with the work number 89002 (Van der Koelen 1998, 187) is owned by the Centro per l'arte contemporanea Luigi Pecci in Prato, Italy. This installation comprises a steel structure, painted grey, with a free-standing wheel that is also fitted with colour TV sets.
A stable metal bridge over the water trough invites viewers to cross over the flowing water. The description states that the video is shown in colour.
The illustrations show the identical video sequence of cascading water. *Liquid Time II* from 1993 is listed under work number 93003 (Van der Koelen 1998, 359) as a structure made of rusted steel and owned by ZKM. In contrast to the work in Prato, the wheel of this installation has a metal cover.

Conclusion

It can be concluded that the video was meant to be shown in colour because Fabrizio Plessi himself stated that the water should be seen in its natural colours. However, a colour presentation of the Karlsruhe installation is confronted with the special properties of the metal structure and the associated physical phenomena. The previous method of presenting the artwork using the black-and-white mode for the colour TV sets can be regarded as the simplest way of avoiding undesirable picture malfunctions.
Discussions relating to a future presentation in colour were based on the idea of using a more complicated technical method of manipulating the screens; however, these were rejected because although such a method could have

[5] The discussion took place at the ZKM in 2006 during the dismantling of the artwork.

enabled a presentation in the colour mode without picture malfunctions, it would have not only altered the original presentation practice but also led to inestimable costs.

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Don't Believe I'm an Amazon
THE PRESERVATION OF VIDEO INSTALLATIONS BASED ON PERFORMANCE ART

Martina Pfenninger and Agathe Jarczyk

Abstract
The preservation and documentation of video installations based on performance art present particular challenges. The origin of the installation is a performance or a series of performances that are recorded as a video. These videos may have originally been made as independent artworks or simply for documentation, but can later evolve into installations as the artist adds props or other objects charged with meaning. The subject of this chapter is an early work by Ulrike Rosenbach, *Don't Believe I'm an Amazon*. As part of the EU project *Inside Installations*, an interdisciplinary team at the Restaurierungszentrum Düsseldorf documented and restored the artwork in the collection of the Museum Kunst Palast. The four existing videotapes were examined by the authors of this chapter. The results of this project are presented and critically discussed.

Introduction
Like many other museum collections, the Museum Kunst Palast has accumulated a number of videotapes belonging to the same artwork over the years without documenting their status. The authors examined the four existing videotapes belonging to the installation *Don't Believe I'm an Amazon*[1] and established a research method which is generally applicable to similar case studies.
The objective was to decide which one of the video versions should be exhibited in the installation and to determine how the existing videos relate to each other. In order to achieve this goal, a more detailed understanding of the various performances and their development process was necessary. Archival research turned out to be rather unsuccessful due to the lack of documentation in museum archives and galleries that distribute Rosenbach's work. Curators who worked closely with the artist at the time as well as witnesses of the performances were interviewed by the authors instead, to gather their experiences and recollections. These insights were combined with information gained from an interview that the team at the Restaurierungszentrum Düsseldorf conducted with the artist.[2] Additional written correspondence with the artist clarified some of the open questions concerning the video equipment used during the performances and for the recording of the videos.

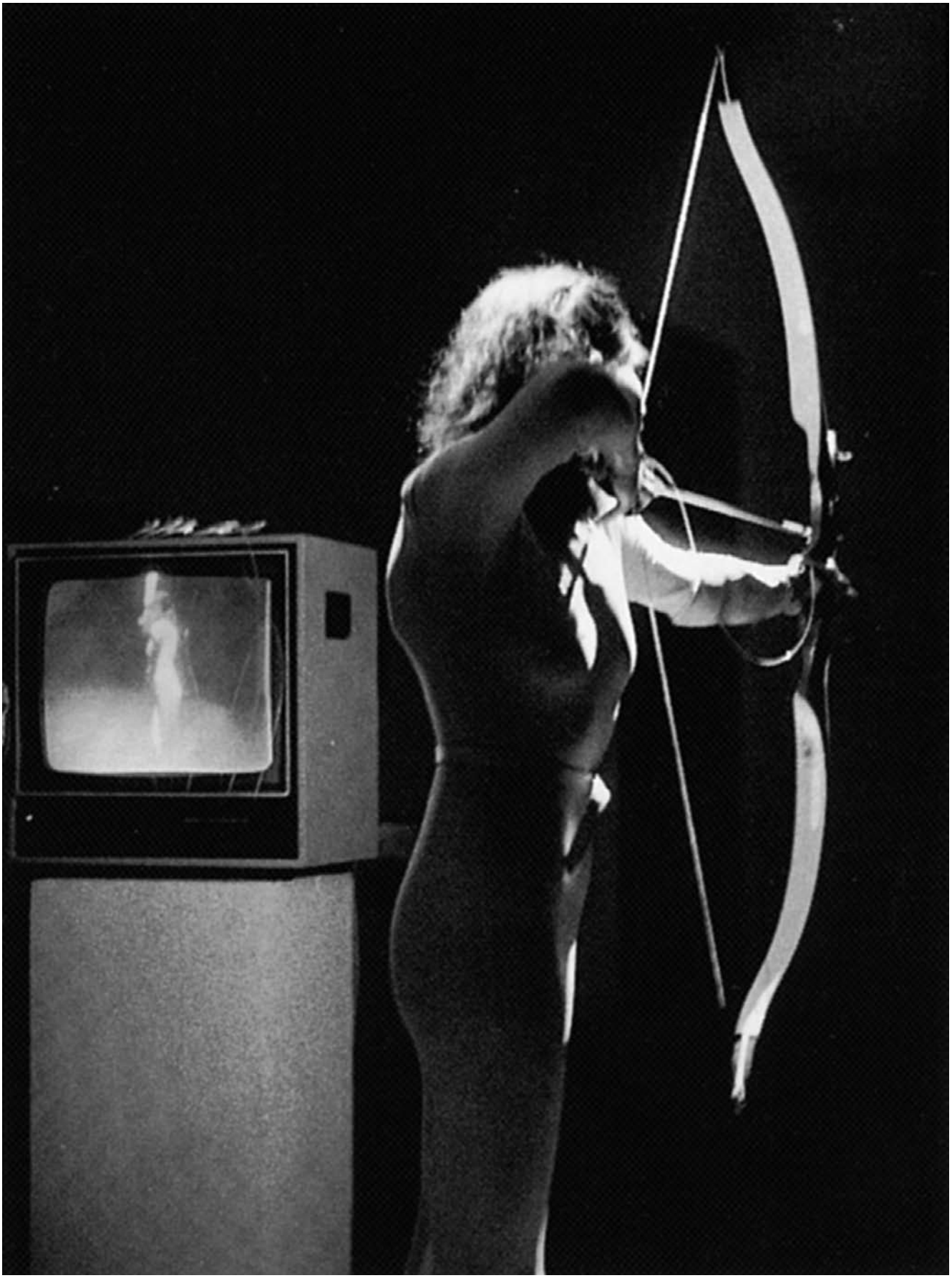
Versions of the performance
Ulrike Rosenbach, a German artist, was already working with video as a medium in the early 1970s. As a student of Joseph Beuys, she came into contact with the Fluxus movement and happenings early on and exploited

1 The German title of the artwork is *Glauben Sie nicht, daß ich eine Amazone bin*.

2 Members of the team included Gunnar Heydenreich, Heike Koenitz, Martina Pfenninger, Franziska Stoldt and Cornelia Weyer.

this experience in her performances, which she herself called 'Live-Aktionen'.[3] Her performative works usually involved video technology (Carlson 2004).
The first live public performance of *Don't Believe I'm an Amazon* took place in 1975 during the Biennale des Jeunes in Paris.[4] Rosenbach wore a close-fitting white jersey. The spotlight illuminating the scene heightened the drama. Calm and concentrated, she used a bow to shoot arrows, probably fifteen in total, into a target to which a black-and-white reproduction of the *Madonna im Rosenhag* by Stefan Lochner was attached. Mounted in an opening in the middle of the target was a video camera that transmitted its live signal to a Sony PVM-200 studio monitor. The audience, standing in the dark behind Rosenbach, was thus able to see not only the actions of the artist but also her video image that appeared to be aiming directly at them ❶.
Although the performance was not recorded, it was photographically documented by Klaus vom Bruch. The props, in this case the target with the photographic reproduction and the arrows, remained in the exhibition rooms until the end of the Biennale des Jeunes.[5]
The Parisian setup was then repeated soon afterwards in the studio of Ingrid Oppenheim in Cologne.[6] Rosenbach initially supervised the video studio, which was simple but very well equipped for the time and also used the equipment for her own work. The performance was recorded in the studio with an NTSC colour camera and a half-inch videotape recorder (VTR).
Later on, Ulrike Rosenbach extended the technical video aspects of the work and presented the same performance a few weeks later in the Galerie Krinzinger in Innsbruck.[7] This time she used two black-and-white video cameras, a video mixer, a monitor and a half-inch VTR. One camera directly faced the picture of the target Madonna, while the other was positioned obliquely in front of the artist and was focused on her face. The output signals of the two cameras were superimposed using the video mixer so that the audience as well as the artist could see the two superimposed camera images on one monitor. The output signal of this mixer was recorded with an open-reel recorder in CV standard.[8] However, the artist herself did not regard the video recording made of this performance as a part of the artwork.[9]
In her own Düsseldorf studio, Rosenbach repeated this version of the performance with superimposition of the two signals, which was recorded again as an open-reel CV video. It is unlikely that spectators were present in the studio, but this cannot be proven with certainty. The video setup (position of the cameras, lighting, settings of the video mixer, etc.) was probably adjusted for the studio recording and was based on the Innsbruck version. This recording of the studio performance was subsequently established as an artistic video work entitled *Don't Believe I'm an Amazon*.
The artist described her performance as follows:
'I shoot fifteen arrows at a reproduction of a medieval painting of a Madonna (Madonna im Rosenhag, Stefan Lochner, circa 1451). The video monitor shows the head of the Madonna into which the arrows penetrate, and my face, softly superimposed. The image of the Madonna, representative, remote, beautiful, gentle, shy, and a rather tasteless cliché, is reflected in mine. When the arrows hit the picture, they hit me as well' (Rosenbach 1982).

3 As Rosenbach states: 'In a "Video-live-Aktion", the spectator must work with two different visual impressions: the "direct" action taking place in the room and the television images captured by the video camera and transmitted live to monitors' (Rosenbach 1982).
4 Biennale des Jeunes, Musée d'Art Moderne Paris, September-November 1975.
5 Wolfgang Becker, curator of the Biennale des Jeunes 1975, interviewed by Martina Pfenninger, 26 January 2010.
6 The gallerist Ingrid Oppenheim opened one of the first German video production studios for artists in 1974.
7 Workshops as part of the exhibition *Frauen und Kunst*, Galerie Krinzinger, Innsbruck, October-November 1975.
8 The half-inch open reel CV standard, introduced by Sony in 1965, was one of the first video formats used for art production.
9 Ulrike Rosenbach interviewed by Gunnar Heydenreich, Heike Koenitz, Martina Pfenninger, Franziska Stoldt and Cornelia Weyer from the Restaurierungszentrum, as well as Stephan von Wiese, curator of Museum Kunst Palast, Düsseldorf, 11 December 2006.



❶ Ulrike Rosenbach, *Don't Believe I'm an Amazon*. Performance at Biennale des Jeunes, Paris, 1975 / COPYRIGHT VBK, Vienna 2010; PHOTO COPYRIGHT Klaus vom Bruch / VBK, Vienna 2010.

❷ Ulrike Rosenbach, *Don't Believe I'm an Amazon* 1975. Installation view at Museo de Bellas Artes de Bilbao in 2007 / COPYRIGHT VBK, Vienna 2010 / PHOTO COPYRIGHT Archive of the Bilbao Fine Arts Museum.

❸ U-matic tapes and video stills of the different recordings from the installation *Don't Believe I'm an Amazon* by Ulrike Rosenbach, 1975, PHOTO COPYRIGHT VBK, Vienna 2010.

The arrows in the Innsbruck and Düsseldorf recordings thus hit the Madonna as well as the artist herself. This interpretation is reinforced by the physical similarity between the two faces. In contrast, the performance and the video recordings made in Paris and in the Oppenheim studio produce a completely different impression. The artist is aiming at the camera embedded in the target. In these live performances, the image on the monitor shows that she appears to be aiming at the audience. The aggression is thus not directed towards herself, but at the spectators.
It can be assumed that Rosenbach was already aware of the formal similarity between her facial features and those of the *Madonna im Rosenhag* before the Biennale in Paris and thus the possibility of technically superimposing the two images was already taken into account during the development of the work. It is also possible that she experimented with the superimposed images during the rehearsals for the Parisian performance.[10] How the video performance was executed in detail, whether one or two cameras and a video mixer were used, would certainly have depended on which technical equipment was available at the time.

Development of the installation

For a solo exhibition by Ulrike Rosenbach in 1976 in the Neue Galerie – Sammlung Ludwig in Aachen, the performance was transformed into an installation.[11] As a new element, the target and the arrows were now combined with a series of black-and-white photographs of the Paris performance as well as some video stills. The artist showed the video with the superimposed images as a U-matic copy[12] on a monitor. The same configuration of the artwork was shown for a second time in the Neue Galerie in 1986.[13] Fourteen photographs that Ulrike Rosenbach had used as a source of inspiration for the Amazon myth were added this time to create a further level of meaning. The Hollywood film *The Amazons* served as the basis for these Amazon clichés.[14]
In this form, as an installation based on a performance, the artwork was purchased in 1987 by the Kunstmuseum Düsseldorf from the Galerie Philomene Magers in Bonn (Wiese 2007).
The installation was then shown for almost seven years as a permanent exhibit in the Kunstmuseum Düsseldorf (later Museum Kunst Palast). The U-matic video format was probably used as the playback medium. The video was shown on a Sony Trinitron colour monitor, that was already outdated, and subsequently on a black-and-white Braun monitor. Owing to the size and nature of the cathode ray tube, the monitor is a key sculptural element within the installation.[15] After refurbishment of the museum, the work was put into storage until documentation and conservation were carried out as part of the research for the *Inside Installations* project.[16] The video recording was also digitized for the purpose of conservation and was thus shown as a DVD exhibition copy.[17, 18]

Since then, the installation has been shown in Bilbao ❷ in 2007 and in Schloß Benrath near Düsseldorf in 2009.[19] Both re-assemblies were overseen by Rosenbach, who also decided on the arrangement of the elements. Over the years, the artist has frequently changed the order of the photographs, the

[10] See note 5.
[11] *Ulrike Rosenbach: Foto, Video, Aktion*, Neue Galerie – Sammlung Ludwig, Aachen, December 1976-January 1977.
[12] U-matic is a three-quarter-inch video cassette format introduced in 1971. The format was prevalent in video art until the 1990s.
[13] *Spuren des Heiligen in der Kunst heute*, Neue Galerie – Sammlung Ludwig, Aachen, April-May 1986.
[14] *The Amazons* (Le guerriere dal seno nudo), 1974, Italy, directed by Terence Young.
[15] Future presentations will be facing the fundamental problem of finding one of the ever-diminishing number of functioning CRT monitors.
[16] Koenitz, *The colour photographs;* Heydenreich and Stoldt, *The arrows*; Jarczyk and Pfenninger, *The videotape – master or copy?* www.inside-installations.org/artworks/artwork.php?ref_id=&r_id=106, 2006 (accessed January 2010)
[17] An exhibition copy is usually produced to spare the original. Historically the videotape purchased by a museum was often the only copy in the collection and also used for exhibitions. In response to the susceptibility of the medium, a range of video formats for different purposes was introduced. Today archive masters are produced as high-quality storage carriers, while exhibition copies serve for display and distribution.

height of the monitor's plinth and the position of the components, depending on the exhibition space.
The moment the artwork is transferred from the artist's hands to the ownership of an institution is particularly important for performance-based installations such as *Don't Believe I'm an Amazon*. In many cases, this transfer often means that a performance becomes a static artwork. However, as demonstrated by *Don't Believe I'm an Amazon*, such artworks often remain in a variable state; its elements can be arranged in different ways. The artist may still add or revise a component, as in the case of the photographs and videos. Re-examination of the various performances and the exhibition history are thus essential in order to capture all the facets of such an artwork.

Performance documentation as artistic expression

Unlike many performance artists of her time, Ulrike Rosenbach rarely used video as a means to document her live performances. Of greater importance is the fact that the use of video technology has led to the creation of new works that have become emancipated from their origins as performance and which are now regarded as independent artworks. There are two different video recordings of the live performance. Rosenbach only authorized the version produced in her studio with the superimposed images as part of her work *Don't Believe I'm an Amazon*. The video, which was recorded during the performance in the Oppenheim studio, appears in the catalogue of works under the designation 'Aktionsdokumentation' (action documentation), although the artist did not intend it to be screened.[20] Even if it was designated by Ulrike Rosenbach, this recording cannot be regarded as pure documentation, but rather as an 'interpreted form of documentation from the artistic point of view'. With the camera positioned inside the target and the effect of the green filter added in post-production, the spectator's perspective of the work is already strongly influenced by the artist ❸.
After comparing all components of the artwork, the series of black-and-white photographs taken during the performance at the Biennale des Jeunes in Paris can be said to comprise the most genuine documentary character. Although the overall configuration at the Parisian Biennale is not revealed by these photographs, the set of surviving images does provide a fairly complete picture. The lighting and the positions of the monitor, the audience, the target and the artist in relation to one another can be reconstructed.
Since the photographs resulting from the action in Paris are the only surviving images of the performances of *Don't Believe I'm an Amazon*, they have often been published together with stills from the superimposed video. As a consequence, these publications might give the impression that the video was created at the Biennale. Such inaccurate evaluation in published texts may also be of significance for the future perception of the artwork.
Many artists recognized, not least for financial reasons, the necessity of staging their work for a camera. This was the only way to secure the survival of ephemeral performance and body-art works and make them accessible to a wider public. Furthermore, the documentation produced by the artist could be used to control the reception of the artwork by art historians and critics. The audience present during the performance was very rarely documented prop-

[18] All four cassettes were migrated to Digital Betacam between 2004 and 2005 and will be archived in the future as equivalent components of the artwork.
[19] *Kiss Kiss Bang Bang*, Museo de Bellas Artes de Bilbao, June–September 2007. *Vielleicht ist die Wahrheit ein Weib…*, Schloß Benrath May–September 2009.
[20] See note 9.

erly. According to Auslander, however, the presence or absence of an audience does not play much of a role for the later reception of the work: 'It is not the initial presence of an audience that makes an event a work of performance art: it is its framing as performance through the performative act of documenting it as such' (Auslander 2006).

Analysis of the videos - methodology and evaluation

The collection of the Museum Kunst Palast in Düsseldorf includes a total of four different U-matic video cassettes signed by the artist. The cassettes are labelled with the year of recording (1977, 1984, 1990 and 1993) and differ in their condition as well as in their content, image quality and recording technology.[21]

The earliest cassette from 1977 contains two different video recordings: the black-and-white video of the superimposed faces of the artist and the Madonna, which was authorized by the artist as an independent work, and the NTSC colour recording from the Oppenheim studio, which Rosenbach refers to as 'action documentation'. The remaining three cassettes contain only the authorized video ❸.

Even if all four cassettes were initially provided directly by the artist, there was no clear indication at that time as to which tapes should be considered as archive masters and which should be used for display. For both future preservation and exhibition, a decision had to be made as to which of the four versions of the video should be utilized for the production of exhibition copies. The four U-matic tapes were thus compared using various qualitative and quantitative methods. In addition to a visual inspection in which the surface of the tape and the tape pack were assessed, the cassettes were first cleaned and then digitized. During digitization of the video, the signals were stabilized with the aid of a time base corrector (TBC)[22]. For simultaneous and frame-accurate playback, the four digitized clips were synchronized and edited on one screen in split view ❹.[23] This enabled a direct comparison with respect to the content, the image quality and the recording technology.

The video signals of the four cassettes were qualitatively compared by visualizing the same frame of each cassette on a waveform monitor,[24] documenting the image photographically and then evaluating the amplitude and dynamics of the video signal. The dynamic range of the signal is proportional to the image contrast, while the amplitude depicts the level of the video signal. From one generation to the next, analogue copies undergo a generation loss,[25] which is also expressed by increased noise and loss of contrast. The audio signal was analysed to provide further quantifiable data regarding the quality of the recording.

The comparison revealed that the cassettes from 1984 and 1993 have the highest video levels; in particular, the 1993 cassette was recorded oversaturated. It has lost detail in the lighter regions, particularly in the superimposed faces. The 1977 cassette has the highest contrast, whereas the 1990 cassette has the lowest.

The audio signal was digitized in order to assess the audio tracks. The quality of the recording on the different copies was evaluated by listening to the audio track and comparing the audio waveform in the editing programme.[26]

[21] All four cassettes are labelled with 'copy' and the date (m/yy): 'Kopie 1977' (Sony KCA-60BRS), 'Kopie 5/84 Nr. 18' (Fuji KCA-20 H520), 'Kopie 8/90' (Sony KCA-30BRS), 'KOPIE 3/93' (Sony KCS 20-BRS).

[22] A time base corrector (TBC) is a digital frame store used in analogue tape playback to stabilize the video signal as well as to compensate for dropouts.

[23] The tapes were first copied onto Digital Betacam and then entered into to the editing programme. Digitisation from U-matic Sony VO-9800P via TBC BVT-800PS composite DVW-M2000P sdi Blackmagic DeckLink into Final Cut Pro 6.0.6.

[24] A waveform monitor is an instrument to measure and display the level of a video signal with respect to time.

[25] A generation loss is a degradation of signal in analogue copying due to an increase of noise.

[26] The visual representation of audio is its waveform display, which is a graph showing the amplitude (loudness) over time.

❹ Evaluation of the videos from *Don't Believe I'm an Amazon* by Ulrike Rosenbach, 1975, using split view; tapes from 1977, 1990 and 1993 show a section with clear traces of creasing; COPYRIGHT VBK, Vienna 2010.

The audio signal of all four cassettes was recorded on the right channel in mono and begins at the same time as the video image. The 1977 recording has the lowest audio level; the volume of the 1984 and 1993 cassettes is slightly higher. The 1990 cassette has the highest audio level. On this cassette, the performance is shown without a title twice in succession and the second sequence is significantly louder than the first.
The comparison in split view ❹ showed differences in the editing; the cassettes recorded in 1977 and 1993 probably derive from the same source: a videotape that was edited with hard cut edits without flying erase heads.[27] Typical for these edits are blanks and glitches between the joined sequences. For the editing of the tapes from 1984 and 1990, Rosenbach already used newer equipment that allowed assemble edits. This technology avoids interruptions with blanks.
In addition to the different editing techniques, Rosenbach also changed the titles: the cassette from 1984, for example, has been supplemented by a further title and credits created with an electronic title generator.
The cassettes from 1977, 1990 and 1993 show a section with clear traces of creasing before the fifth arrow is shot, which is attributed to the open reel CV master tape ❹. This tape was shown to the public for the first time by Galerie Magers in 1976 or 1977 at the Kunstmarkt in Cologne. A section of the fragile videotape was then creased due to incorrect handling. As a consequence, the open-reel master tape was probably migrated in 1976 or 1977 to U-matic High Band,[28] which was a relatively new cassette format at that time. Presumably this U-matic tape became the new master copy of the artist. Comparing the errors of all four videotapes in the collection of Museum Kunst Palast, it becomes clear, that their dropouts and glitches are due to a common source, as they are found at identical points.
Over the years, an increasing number of post-production techniques were developed that Ulrike Rosenbach actively exploited, especially in the tape from 1984. She used title generators with fonts typical of the 1980s as well as improvements in editing technology to re-edit her tapes with an assemble edit.[29] Rosenbach probably increased the contrast of the recording on the 1984 cassette. The artist justified this by the fact that early black-and-white monitors in the 1970s had a higher contrast range[30] In the later copies, she was more conservative in her use of new technical possibilities. The 1993 copy is identical to the 1977 cassette with respect to contents and editing. Eventually it could be an inferior copy of the 1977 tape. The tape from 1993 does not show increased image failures therefore it is not evident if it maybe was produced to be displayed as an exhibition copy. The 1984 cassette however shows clear signs of wear and tear, such as creases and numerous dropouts, which leads to the assumption that this copy was frequently shown in the exhibition.
The cassettes from 1977, 1984 and 1990 in the collection of the Museum Kunst Palast are all individual copies of the same source but show different titles and edits, corresponding to the level of video equipment development of their respective time.

[27] Early video formats had stationary erase heads positioned in a certain distance to the video head. Consequently analogue video assembling provoked an erased but not yet recorded gap on the tape. These gaps appeared in the video image as blanks and glitches. The flying erase heads, introduced later, allowed clean and smooth cuts, known as assemble and insert edits.

[28] See note 9.

[29] An additional comparison of the four cassettes from the Museum Kunst Palast with other examples of this work from the Zentrum für Kunst und Medientechnologie Karlsruhe and the Kunstmuseum Bonn (donated by Ingrid Oppenheim) confirmed that Ulrike Rosenbach had repeatedly edited her works.

[30] See note 9.

Consequences for the presentation

In view of the numerous differences and re-edits of the four video versions, the question arises as to which cassette should to be used as a source for producing future exhibition copies. The key criteria appear to be the authenticity of the performance on the one hand, as well as the audio and video quality of the tape on the other. The 1984 cassette cannot be declared as a source for further exhibition copies owing to its poor signal quality. The video level of the 1993 cassette is clearly oversaturated, whereas the 1990 version shows the performance twice in a row without an interruption. This means that the length of the video no longer corresponds to the actual duration of the performance, which affects the legibility of the original act as a procedure with a beginning and an end. Therefore, using the principle of exclusion, the oldest version from 1977 should be considered as the master for future exhibition copies. But not only the duration and chronology of the video are essential to experience the original performance to a full extent. Before the installation owned by the Museum Kunst Palast was restored in 2005, it was discovered that the different intrinsic degradation rates of the individual materials had altered the contents. This has also limited the legibility of the artwork as a relic of the performance.

Whereas the target and the black-and-white photographs were in a satisfactory state commensurate with their age, some elements of the installation *Don't Believe I'm an amazon* were in an unsatisfactory condition before restoration in 2005. The total of nine colour photographs of the film *The Amazons* printed on Agfacolor PE paper had completely lost their blue tone. The arrows with a tapered aluminium shaft and originally fluorescent yellow flights were also severely degraded. The industrially produced arrow flights made of polyester urethane had almost completely decomposed as a result of fast hydrolytic degradation reactions. A threatening and aggressive aspect of the performance were the whizzing arrows that bored their way into the reproduction of Lochner's Madonna. Due to the loss of arrow flights, the now naked shafts lost their immediate associative impact as flying weapons. The act of archery was thus no longer clearly understandable as part of the installation. The aim of the restoration at the Restaurierungszentrum Düsseldorf was to re-establish the legibility of the artwork. To this end, it was decided that the discoloured photographs and the missing arrow flights were to be reconstructed. The reasoning used to develop the conservation concept has been described in detail by Weyer (2009).

What needs to be considered?

The aim of these investigations by using the case of *Don't Believe I'm an Amazon* was to draw conclusions regarding the factors that should be taken into account when preserving performance-based installations. The methodology applied during this research was also critically evaluated.

The development of the performance *Don't Believe I'm an Amazon* and its various staged versions could not be verified completely: the limited source material primarily consisted of photo documents and was based on artist interviews and information collected from members of the audience. The relatively long period of time since the creation of the work in 1975 and its evalu-

ation nowadays proved to be a major problem. Reliable eyewitnesses have become rare. The power of recall can fade, and recollection becomes mixed with published interpretations. This may contribute to myths arising about the creation of an artwork. For the survival of performance art, it is thus essential to document the course of events and the context, as well as impressions of the audience as close as possible to the time of the creation of the artwork.
In order to understand the artwork and to develop conservation strategies, it is useful to clarify whether the individual elements have a purely documentary or more of an artistic nature. The readability of the original performance or 'staged action' is the decisive factor for many of these artworks and is essential for understanding the artistic concept. The re-examination of the history of the performance proved to be vital for evaluating the existing individual videos. Information on the origin of the various recordings has clarified their status within the ensemble of the performance-based installation.
In case a collection has a number of different tapes accumulated, which all belong to one artwork, a decision has to be taken which of the tapes should be preserved and shown. As a consequence an evaluation of their content and condition is necessary. An exact analysis of the four versions of video belonging to the artwork *Don't Believe I'm an Amazon* showed that a comparison of the signal dynamics with a waveform monitor provides initial information on the quality of the recording. A direct comparison of the four digitized tapes, using the same timeline, provided further valuable data on differences with respect to content and condition. The evaluation of the videos clearly illustrated that the artist used technical refinements to constantly 'modernize' her recordings as soon as she had access to more sophisticated equipment. Research into the exhibition history of the artwork confirmed furthermore that Ulrike Rosenbach also intended the installation to be variable.
If later re-workings which use new technology compromise the historical dimension of the work, it should be critically discussed as to how far they are acceptable. The question arises as to how long a museum will allow such alterations or encourage the artist to authorize a particular version. Documentation of the changes in artistic intention over time is helpful in these cases. Collaboration with the artist may be desirable if this opens new perspectives for the artwork.
The understanding and the preservation of the installation *Don't Believe I'm an Amazon* require comprehensive documentation of each stage in the life cycle of the artwork likewise. This includes the history of the various performances, variations of the installation elements as well as re-workings of the videotapes. Although not all of the existing videos of *Don't Believe I'm an Amazon* have proven to be apt to be exhibited within the installation and some elements may vary, they are nevertheless all equally important parts of the artwork in its entirety and must be preserved and documented as such.

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How Material Is Conceptual Art?

FROM CERTIFICATE TO MATERIALIZATION: INSTALLATION PRACTICES OF JOSEPH KOSUTH'S *GLASS (ONE AND THREE)*

Sanneke Stigter

Abstract

This chapter explores museum practice and the curatorial management of Joseph Kosuth's *Glass (one and three)* with a special focus on material evidence. The installation history of the work will be analysed and different reinstallation strategies will be considered and questioned in order to gain perspective on curatorial and conservation practice. This material-based research encourages reflection on the role of the art conservator in the interpretation and display of conceptual art.

Introduction

Glass (one and three), [English-Flemish], dated 1965 is a conceptual artwork by Joseph Kosuth in the collection of the Kröller-Müller Museum. With his work, Kosuth questions the mechanisms of the Western art world, undermining the artwork as a material object; this is in contrast with the traditional starting point of conservation and museum practice. This is why conceptual art is so challenging to the field of conservation. It pushes institutionalized museum practices to their boundaries, forcing the conservator to look beyond the traditional conservation paradigm and reflect upon the impact of the profession. How does one interpret the artist's certificate (diagram), along with the history and curatorial management of the artwork? What can be said about the artwork's proclaimed site-specificity and the artist's intent? It has been claimed that the photograph in *Glass (one and three)* should be renewed at every location, but different strategies have been found. The aim of this chapter is to provide insight into the lines of reasoning during decision-making on conservation, and presentation strategies to allow a more transparent view on the constructed nature of these decisions marking the various moments throughout the life of an artwork.

Case study

Conceptual art

Conceptual art is a term used for art from the 1960s and 1970s that intentionally negates the high value traditionally assigned to the unique art object. Sol LeWitt's explanation is often quoted: 'In conceptual art the idea or concept is the most important aspect of the work… all of the planning and decisions are made beforehand and the execution is a perfunctory affair.' Often conceptual art is not fabricated by the artist but made by the owner or the public through instructions. 'Non-materials', such as language and impersonal, reproducible media like photography, are used.

Joseph Kosuth

Joseph Kosuth (1945, Toledo, Ohio, US) is one of the leading conceptual artists. He aims to present 'art as idea as idea' and refers to his work as 'investigations' rather than (fixed) works of art.[1] *One and three chairs* (1965), an object – a chair – presented in form, image and text marks the starting point of his career. A whole series of 'proto-investigations' followed that was based on the same principle but each carried out with a different object. The irrelevance of the object to the idea of the artwork becomes clear. Kosuth, however, did choose the object, and I will argue that the type of object, and its material, does add meaning to the 'investigation'.

Glass (one and three)

Glass (one and three) is one of the proto-investigations. It consists of a sheet of glass leaning against the wall flanked by its photograph on the left and the object's dictionary definition on the right. As with all of Kosuth's proto-investigations, the conceptual notion of the object, along with the image and text are seemingly indifferent to their material characteristics. Depending on how the artwork is managed, the photographs may consist of gelatin silver prints on either fibre-based or resin-coated paper and may be pinned to the wall or, when mounted on fibreboard or aluminium, held up by L-screws. The text image is often called a 'Photostat' but this refers to a brand name of an already obsolete technique while actually a gelatin silver print is used[2]. Type, thickness and maybe even the size of the sheet of glass may vary. These shifts in materials and techniques show how much the look of the artwork is determined by the choices made by different stakeholders over time, either made consciously or as the result of practicalities.

Case research

For *Glass (one and three)* a 'diagram' was provided with instructions to execute the artwork. The question is how to interpret these instructions; because not much is specified and different approaches have been taken over time. During the search for a good installation practice, various sources were studied meticulously. Evidence was not only found in their content but also in their material particularities as demonstrated by sources 'A' to 'M', described below.

A. Installation history

In 1977, *Glass (one and three)* was acquired by private collector Geertjan Visser and first created in his Antwerp apartment. The photograph of the glass showed Visser's tiled floor, the same floor on which the whole work was installed, generating a visual site-specific effect. This characteristic was lost when the work entered the collection of the Kröller-Müller Museum as a long-term loan in 1979. The 'original' parts were handed over, which consequently had been used to install the work in the museum. With the official acquisition in 1995, this practice was not changed. The installation procedures did change, however, in 2005 when the Stedelijk Museum Amsterdam wished to install the work with a newly made photograph to meet the initial visual site-specific character. This was claimed to be the artist's intent by then-director

[1] Kosuth often subtitles his work 'Art as Idea as Idea' and catalogues his early work as a series of 'investigations'.

[2] 'Photostat' is a brand name for an obsolete camera-based photographic copying machine used in the graphic industry, mainly in the first half of the twentieth century. The image was directly printed onto photosensitized paper to make an image out of a collaged composition before printing. The first Photostat is a negative image (black) and this is then used to make new Photostats for positive images. For the first proto-investigation(s) a Photostat could have been used, but the use of the term could also refer to the idea of this technique. The 'wet' photocopying on photosensitized paper was gradually abandoned and taken over by 'dry' copy machines by Xerox (Kingslake 1974).

Rudi Fuchs. For this occasion, a new photograph was made of the glass situated on the parquet floor of the Stedelijk Museum. It made the artwork contemporary to the actual time and space, which in itself is interesting in a retrospective show on conceptual art in the Netherlands and Belgium.
If it would be considered suitable to show the work in a 'historic form' using the 'original' photograph, I would say that it would have been in this context. Interestingly the exhibition catalogue shows the installation view of *Glass (one and three)* in the former situation with the 'Visser photograph' in the Kröller-Müller Museum ❶. It is unclear how 'authentic' the idea of renewing the photograph is, because this is not specified in the accompanying certificate.

B. Certificate

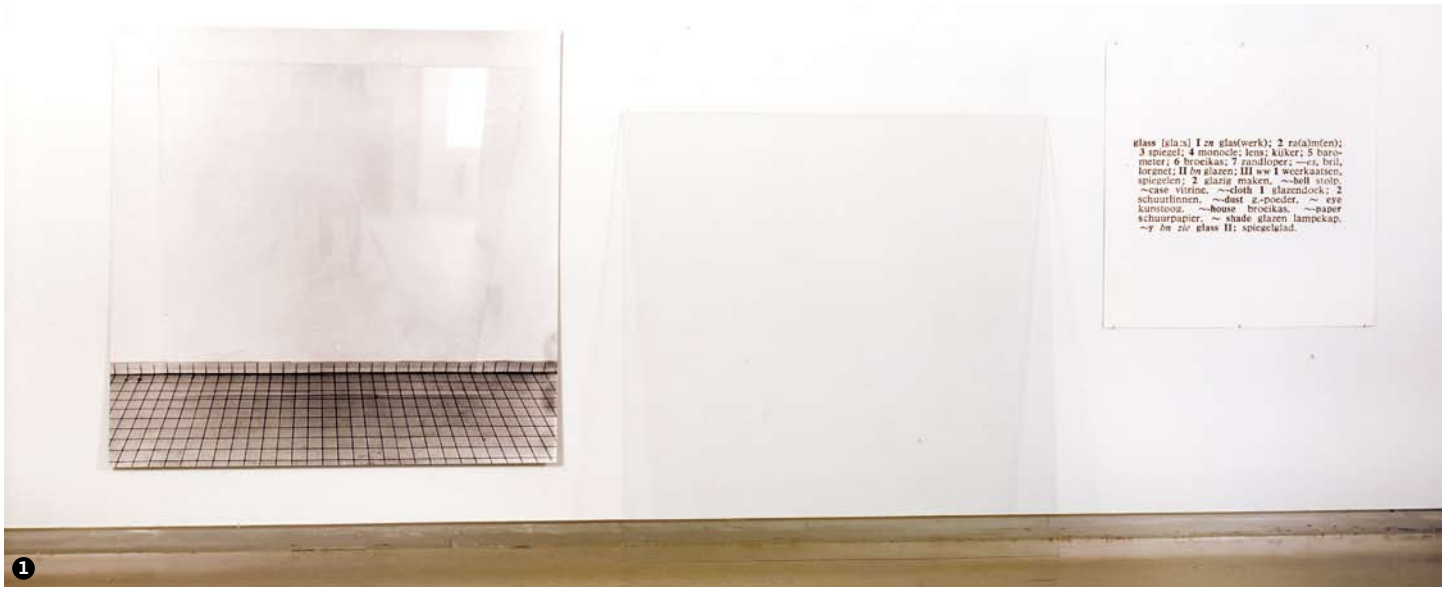
The diagram, regarded as the certificate of Kosuth's *Glass (one and three)*, only consists of a schematic drawing marked 'Diagram' with some explanatory words next to each of the depicted parts and a stamp ❷. The stamp reads: 'It is the intention of Joseph Kosuth that this work be owned or exhibited exclusively in a *FLEMISH* [filled out by hand] speaking cultural/linguistic context. Fulfilment of this requirement is absolutely essential to the existence of the work [as art]'.[3] This statement is quite specific. It is made clear that the work cannot be exhibited outside the area where one speaks Flemish; nothing is said about interchanging the dictionary definition. What can be concluded from the diagram is that the form of the installation dictates the context rather than the other way around. A location that is determined by language implies that there are more options within the set region of Flanders and the Netherlands where the same dictionary is used. Thus the installation possibilities are not restricted to the site where the photograph is taken, but nothing is said about renewing the photograph at any other location.

C. Drawing technique

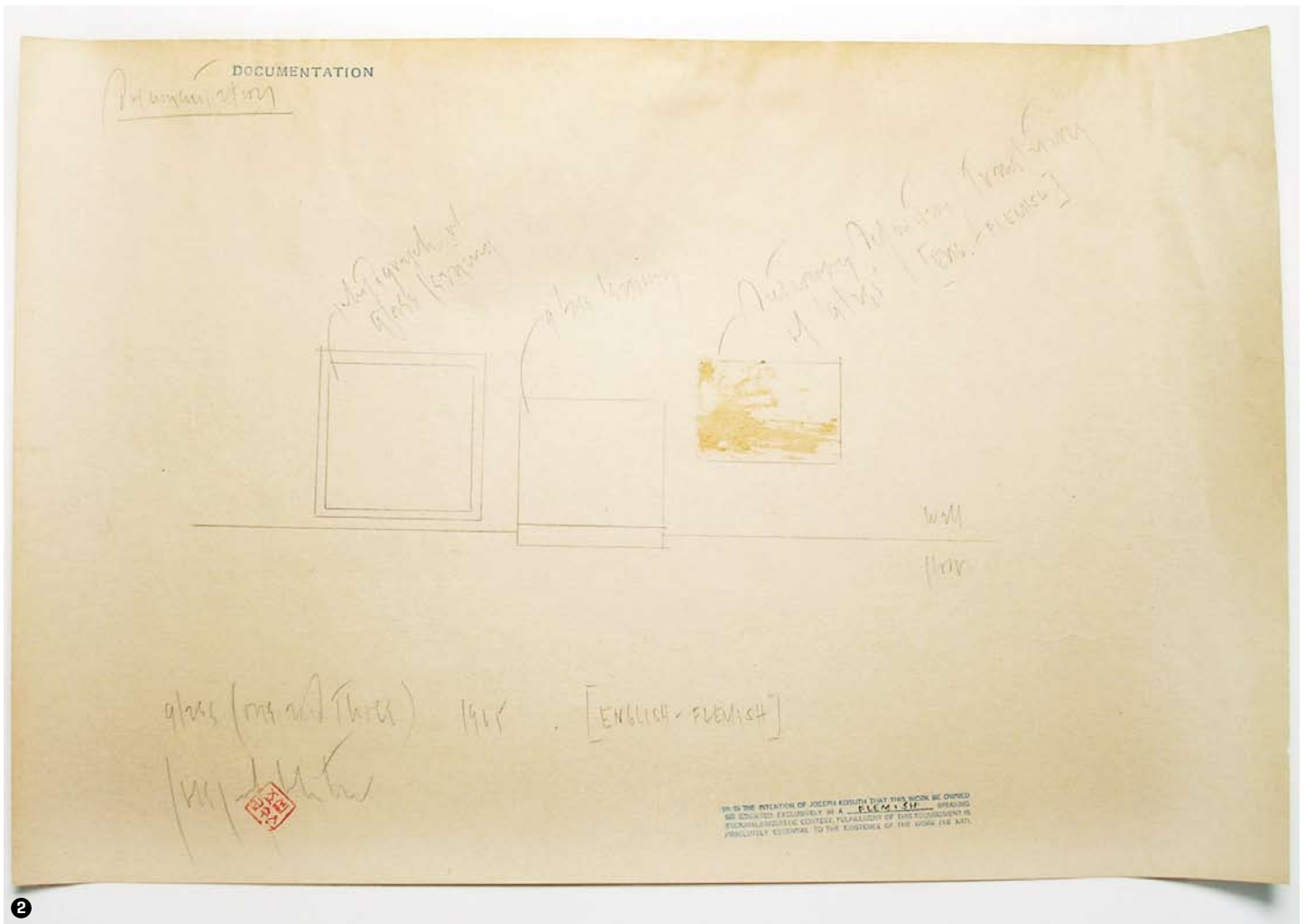
The idea of renewing the photograph was not found on any of the other diagrams for 'proto-investigations' that I studied. What did come up was the question of whether the photograph should depict the object at life size. This is clearly stated for *One and three tables*: 'Image of photo and "real" table should be the same size'.[4] However in *Glass (one and three)* the photograph and the real object both measure 120 x 120 centimetres, so the glass is shown smaller on the photograph.
A close study of the drawing technique of the diagram for *Glass (one and three)* reveals that it is likely that precise dimensions are given because a ruler was used, judging from the perfect straight lines that run a little too far at each corner. When the object and its image are measured, it becomes clear that they have to be equal in size. There is only a three millimetre difference. This can be easily overlooked, and was probably the reason why this was never noticed before. Would this be enough evidence to instigate an installation guideline for a life-size representation of the object in *Glass (one and three)*? Before this question is dealt with, other sources are considered with reference to the idea of replacement of the photograph at other locations.

[3] Joseph Kosuth, Certificate of *Glass (one and three)*, 1976, pencil and ink on paper, 30.3 x 45.5 cm. Kröller-Müller Museum, KM 125.436.

[4] Diagram depicted on second page of Kosuth, no year.



❶



❷

❶ Joseph Kosuth, *Glass [One and Three]*, [English-Flemish],1965, Kröller-Müller Museum 1999. Glass, gelatin silver prints on aluminium, installation size 150 x 350 x 12.5 cm. KM 112.078. The photograph that is used shows the former owner's tiled floor. PHOTO Cary Markerink, depicted in Héman, Poot and Visser, pp. 158-159. ❷ Joseph Kosuth, Certificate of *Glass [One and Three]*, [English-Flemish], 1976. Pencil and ink on paper, 30.3 x 45.5 cm. Kröller-Müller Museum, KM 125.436. PHOTO Sanneke Stigter.

D. Similar work

Other proto-investigations are found installed both with a newly made photograph as well as outside of a visual site-related context. Kosuth's own writing and authorized catalogues always show the proto-investigations in a 'site-related' form; with a photograph made at the installations site. What also becomes apparent in comparison with similar work is the different placement of parts. In some investigations the photograph rests on the floor, in others it is on the plinth or is presented on the wall like a painting. The way the parts are distributed over the wall varies, as does the way the photographs are hung.

E. Site specificity

I prefer to use the term 'site-related' to describe the visual relation to the surroundings of the proto-investigations, rather than 'site-specific' because the site itself does not contribute any intentional meaning to the artwork. The site is not chosen by the artist. The look of the work is adapted to its surroundings when a newly made photograph is used upon installation. The site could be anywhere, albeit within a set region as we have seen.
One and three chairs, Kosuth's first proto-investigation, is best known from the installation photograph showing the situation in the artist's studio, the context in which the work was first assembled.[5] The chair was photographed in the studio and the resulting image was used in the same studio setting, for this was the space where the artist worked. The visual unity with the site could even be a quality that was not thought of consciously beforehand, but might have only became apparent while first assembling the work or upon re-installation elsewhere when the visual site-specificity was suddenly missing. This does not immediately become apparent in a museum with white walls, because of the artist's white studio wall.

F. One and three chairs' installation guidelines

The Museum of Modern Art acquired *One and three chairs* in 1970 from Kosuth. At that time no diagram was provided. 'Instructions' were typewritten on the invoice stating that the photograph of the chair should be replaced for correct installation, 'where the floor and/or wall appear different from what can be seen in the photo, the photograph of the chair should be replaced for correct installation'.[6] This clearly specifies a visual unity for the work, and at the same time seems to provide the freedom to use the old photograph when a similar-looking setting is chosen.

G. One and three chairs' curatorial management

One and three chairs had been installed in different settings since its acquisition, most of the time with the 'original' photograph. Often the desired visual relation to its site was ignored. Research into the installation history and the curatorial management of the French version of *One and three chairs*, in the collection of Centre Georges Pompidou since 1974, shows a similar pattern. The installation guidelines were only specified in 1991 when Kosuth provided a certificate because this had been lacking in the institution's inventory. Apart from the photograph having to be made 'in situ', it is further specified that the photographs should be displayed with drawing pins.[7]

5 Photo by Jay Cantor, in: Kosuth 1973, Vol. 1, 17.

6 The instruction also states that the original photograph 'can be kept as part of the piece'. Invoice 20 October 1970 consulted 29 August 2005 with the kind help of Roger Griffith from the Museum of Modern Art.

7 Instructions after consultation with the artist's assistant in 2002. Archive Centre Pompidou, consulted 30 June 2009 with the kind help of Evelyne Pomey.

It can be concluded that museum practice can take place independent of the artist, differing from presentations that are in accordance with the artist's wishes by museums that have a more independent policy.

H. Artist's statements

Kosuth's own writing and statements all point towards the need for replacement of the photograph in this type of work. 'Everything you saw when you looked at the object had to be the same that you saw in the photograph, so each time the work was exhibited the new installation necessitated a new photograph'.[8] None of the statements are contemporary to the date of conception of the work in 1965. They could therefore be judged less valuable in relation to the supposedly objective historical truth that is generally looked for in conservation decisions.

I. Historic photograph

The artist's statements are contemporary to the first evidence of the (material) existence of *Glass (one and three)*. The first record that could be found is a photograph published in 1973 and shows the work in a site-related form.[9] This photographic source could be used as a touchstone in time to validate the artist's statements regarding Glass (one and three).

J. Conservator's interpretation

The argument that is based on the first proof of the material existence of the artwork separates *Glass (one and three)* from *One and three chairs* in time, whereas Kosuth dates both the artworks as 1965, according to the birth of the concept. This distinction facilitates decision-making in favour of a strategy that pursues renewing the photograph at other locations because this was specified long after 1965. By plotting the different executions of the proto-investigations on a timeline, I can justify renewal as part of the 'artworks' defining properties' (Laurenson), and at the same time stay true to conservation ethics that are based on unity in time and context (Brandi 1977).

K. Other viewpoints

Although a vast amount of literature can be found on Kosuth's *One and three chairs*, very little was found on *Glass (one and three)*. Art historian Marga van Mechelen, however, has written about this work. She explains how installing Kosuth's proto-investigations using the original materials independent of the site could work by considering the concept of the proto-investigation a 'type' in semiotic terms and its executions as 'tokens'. The message of the artwork would be communicated all the same. She even states that one should not focus on the authenticity of the material objects nor make it a site-specific work, because the work is about conceptualizing and imagining as an intellectual effort (Van Mechelen 2006). This viewpoint would justify installation practices independent of the artist's statements.

L. Meaning of material

When different proto-investigations are studied as independent material manifestations, it could be argued that the choice of material contributes to

[8] Quote from radio interview: 'Art as Idea as Idea: an interview with Jeanne Siegel', broadcast on WBAI, 7 April 1970, Kosuth 1991, p. 50.

[9] Photo by Eric Pollitzer, in: Kosuth 1973, Vol. 1, p. 31.

the work's meaning. Glass as a material must have been chosen for its transparency. It could serve as an object that is as transparent as possible, negating itself through its own material characteristics. Compared to *One and three chairs*, *Glass (one and three)* seems to be a more refined proto-investigation that fits the development of Kosuth's thinking.

M. Meaning of form

When the photograph is taken at the installation site, the idea of transparency is also present in the image in the proto-investigations. The photograph then de-objectifies itself as such because the background optically disappears in the real surroundings of the site. The object's image becomes the central focus and not the entity of the black-and-white photograph. Transparency rendered by a site-related photograph therefore suits Kosuth's idea of the proto-investigations perfectly. When the aim of renewing the photograph is understood as the creation of an image as transparent in its surroundings as possible, then the visual site-specific character could be regarded as a meaningful 'by-product' in the artwork, not as an objective in itself. This notion allows room to decide not to renew the photograph if a similar surrounding is chosen that guarantees a similar transparency, which could also be read in Kosuth's guidelines for *One and three chairs* (see source F above).

Decision-making

At a certain point one has to feel confident enough to take a decision on how to 'materialize' the artwork. In the tradition of the Dutch contemporary art conservators who are often also trained art historians like myself, this decision is in practice made by the conservator after formulation of the options and is taken in consultation with the curator, head of collections or the museum director. After considering and validating a lot of art historical evidence complemented with material evidence derived from the artwork itself, I was convinced that it would be best to show *Glass (one and three)* with a new photograph matching the surroundings of the site where the work would be installed. On the one hand, this decision was easy to make because it would not harm the original materials, which would be kept in storage (thereby allowing for perfect reversibility); on the other hand, it was difficult because of the major impact this would have on the artwork's appearance. Conservators are taught to stay away from 'artistic' practices, keep a low profile and only perform interventions when absolutely necessary, always as minimal as possible. Determining a guideline for installation is much more visible for the public. Decisions about reinstallation should therefore only be made after balanced and meticulous research, preferably done by or in consultation with a conservator who understands the importance of combining material evidence derived from the artwork with art historical research, including the artist's own voice. I emphasize this because with conceptual installation art, one has to take on the role of re- or co-creator when the artwork needs to be installed, performed or indeed 'done' as argued by Vivian van Saaze. This is an act that is meaningful to the artwork itself.

Polaroid

❸

glass [gla:s] I zn glas(werk); 2 ra(a)m(en); 3 spiegel; 4 monocle; lens; kijker; 5 barometer; 6 broeikas; 7 zandloper; ~es, bril, lorgnet; II bn glazen; III ww 1 weerkaatsen, spiegelen; 2 glazig maken, ~bell stolp, ~case vitrine, ~cloth 1 glazendoek; 2 schuurlinnen, ~dust g.-poeder, ~ eye kunstoog, ~house broeikas, ~paper schuurpapier, ~ shade glazen lampekap, ~y bn zie glass II; spiegelglad.

❹

❸ Conservator Sanneke Stigter and photographer Hans Meesters discussing the production of a new photograph for *Glass (One and Three)* during the exhibition *Inside Installations* in the Kröller-Müller Museum, 25 October 2006–7 January 2007 continued 21 March–3 June 2007. The public could witness conservation treatment and reinstallation practice of installation case studies. The research questions were explained by documents, videos and interviews with the artist and the conservator. PHOTO Freek van Arkel. ❹ Joseph Kosuth, *Glass (One and Three)*, 1965, Kröller-Müller Museum 2007. PHOTO Sanneke Stigter.

❺ Transparency of the dictionary definition of the English word 'glass' to produce *Glass (One and Three)*, the English version in the Collection M.J.S., Paris. PHOTO Sanneke Stigter.

Original / new materials and dimensions?

This 'doing' of the artwork, a direct confrontation with the options in material manifestations, triggers essential questions that touch upon the fundamentals of what the artwork is or should (not) be (about). That is why practice-based research in conservation strategies is so valuable.

For instance: when renewing the photograph is considered to be good practice, why not include a one-to-one scale representation of the object in the photograph as well? This guideline was not only deduced from the diagram and true for similar work, but also clearly stated by the artist himself: 'left of the object would be a full-scale photograph of it' (Kosuth 1991, 50). For *Glass (one and three)* this would mean that a larger photograph is needed for a life-size image of the glass. It feels wrong for a conservator to 'correct' part of the artwork's first manifestation, bringing to mind how painters 'restored' paintings in the past by painting over parts that they thought they could do better. Improving an artwork using our own insight is opposed to conservation ethics and guidelines based on minimal intervention honouring original manifestations.

For the sake of argument, the possibilities were explored to take the idea further. This proved useful because it shed new light on the material peculiarities of the artwork's initial manifestation. It turned out to be impossible to generate a gelatin silver print larger than 120 x 120 centimetres because of the maximum size of photographic paper. This would not be large enough to allow a life-sized representation of the original object. Using the maximum-sized paper would thus result in a slightly smaller image of the given object. These material limitations could have been the reason why the work had always existed in this form, considering the object as the leading factor. Indeed, the glass had been delivered first and the photograph was taken later (Van den Bosch and Van Kooten 2000).

(Im)possibilities in materialization always set the frame of how artworks are conceptualized and finally look. Big enlargements could only be done in black and white in the 1960s. Interestingly, considering the work's conceptual nature, the black and white has never been abandoned in Kosuth's proto-investigations. This material characteristic does keep the artwork related to time of origin. Alternatively, when choosing a new photograph that could represent the object life size, one could opt for an inkjet print that could be printed in a sufficiently large enough format. This idea immediately makes one aware of the non-coloured nature of the photograph, knowing that inkjet is a colour-based reproduction technique. Another option would be to discard the original object and use a smaller sheet of glass. The consequence would be that the new glass would be close to the size of the textual definition, which would bring the composition of the whole artwork out of balance. That is, unless the text was changed as well...

Stop!

At this point the line of reasoning in decision-making was abandoned because it led too far from the 'authentic' parts of the artwork. But why is this? The discussion could have continued, but the opposite direction was followed. A traditional gelatin silver print was chosen, similar to the old photograph. I still

ask myself what purpose the choice for authentic-looking photographic paper over an inkjet print actually serves when one knows that in order to match its current surroundings the photograph *has* to be made anew? The original glass is still used, so the image is smaller, using the argument that the work had never existed with a photograph larger than the dimensions of the glass. But why is favouring the original object in the proto-investigation over a better-fitting substitute that meets the installation guidelines the right choice? After completion of reinstallation using the original glass and new photographs, it turned out that the difference in size becomes even more apparent when the work is installed in front of a brick wall because of the disruption of the pattern ❸ ❹.

To be continued

Reflection on the reasoning in service of decision-making shows how the arguments used could still be debated. During the last phase of the case research, the 1973 image of *Glass (one and three)* was looked at again in close detail (see source I above). When the separate parts of *Glass (one and three)* are measured from this reproduction, it becomes clear that a life-sized image of the glass is used. Is this the same work? The definition has a different text layout. It appears to be in English, not Flemish-English, so this must be either the same work in a different context, or a different version.
The depicted version was tracked down and is now in the Collection M.J.S. in Paris.[10] This find, which could be regarded 'source N' in this investigation, is very important in the reconsideration of the work in the Kröller-Müller Museum. In the English version, the sheet of glass is smaller, allowing a perfect life-sized depiction. No 'diagram' was provided upon acquisition, only minimal instructions by Kosuth on the installation photo published in 1973 and a slide for the text, leaving the production entirely to the owner ❺. In either case, new installation practices will keep on forming new moments in the live(s) of *Glass (one and three)*, drawing up interesting biographies.

Conclusion

The material manifestations of Joseph Kosuth's proto-investigations such as *Glass (one and three)* trigger fundamental questions about both the nature and the history of the artwork as well as museum – and conservation practice. During in-depth analyses of art-historical sources in combination with the artwork's material particularities and fabrication techniques, the specialist focus of the conservator is indispensable for decision-making, as reinstallation practice itself will translate the concept into a material manifestation again. It is important to be aware of the constructed nature of decisions directing this practice and communicate this clearly to allow a transparent view of the concept of the artwork and prevent this from being blurred by different material manifestations that are always dependent on choices and possibilities in time. The conservator's task is that of a mediator, making the experience of the artworks possible in a consciously and carefully chosen presentation.

[10] Depicted in: Mollet-Viéville, p. 73. I would like to express my gratitude to Miriam and Jacques Salomon for their kind help during my research.

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To Emulate or Not

CONSERVATION CASE STUDIES FROM THE NETHERLANDS

Gaby Wijers

Abstract

During the *Inside Installations* project, the Netherlands Media Art Institute (NIMk) and the Netherlands Institute of Cultural Heritage (ICN)[1] studied if and how emulation can be used as a preservation strategy. Two case studies were conducted on interactive installations: Bill Spinhoven's *Albert's Ark* (1990) and Jeffrey Shaw's *Revolution: A Monument for the Television Revolution* (1990). The results demonstrated that emulation is a viable option for presenting the works in the future, firstly for the short- to mid-term preservation, as current technological equipment will also become obsolete, and secondly for the long term, at least to compare functionality. We need to define the preconditions and evaluate emulation to establish clear guidelines, and to improve insights into reconstruction and emulation as a conservation strategy.

Introduction

Media artworks are often created for site- or time-specific occasions, or for a specific platform, and demonstrate specific vulnerabilities because of the contexts and technologies on which they depend. This use of rapidly aging media technologies affects the material stability of media artworks. The obsolescence of physical storage formats and presentation equipment is the most appealing challenge facing media art preservation. While the conservation of visual arts often deals with objects, materials and the notions of authenticity and originality, media art conservation does not primarily focus on physical manifestation; we deal instead with increasingly ephemeral technological components. 'Traditional' fine art conservation concepts relating to authenticity and originality are currently being reconsidered for media art conservation.[2] Inspired by the Variable Media Network and DOCAM,[3] an entirely new framework and vocabulary have been introduced using notions such as 'medium independent', 'variable', 'migration' and 'emulation'.[4] Building on a long history in the production and presentation of media art spanning the last fifteen years, the Netherlands Media Art Institute (NIMk)[5] conducts ongoing research programmes into media art preservation. In this chapter I will describe how the notion of emulation is incorporated into NIMk's conservation strategy.

Emulation as preservation strategy

Media artists, in particular, have to deal with changing technologies as a part of their everyday practice and therefore often actively participate in the technical upgrading of their work. In the long term, certain types of equipment will be discontinued or break down beyond repair, and will have to be replaced

1 On January 1st 2011, the Netherlands Institute for Cultural Heritage / ICN became part of the Cultural Heritage Agency / RCE.

2 See: 'Authenticity, Change and Loss in the Conservation of Time-Based Media Installations' by Pip Laurenson: www.tate.org.uk/research/tateresearch/tatepapers/06autumn/laurenson.htm (accessed July 2010)

3 Framework, vocabulary and notions have been explored and further developed by *The Variable Media Approach*, DOCAM and others; see the DOCAM website: www.variablemedia.net/e/welcome.html, www.docam.ca/ (accessed July 2010)

4 In conservation vocabulary, to emulate an artwork is to imitate and upgrade it whilst still retaining the original look and feel of the work, as a facsimile. Possible disadvantages of emulation include prohibitive expenses and incompatibility with the artist's intention.

5 The Netherlands Media Art Institute (NIMk) promotes the wide development, application and distribution of, and reflection on new technologies in the visual arts, see www.nimk.nl (accessed July 2010)

by later types incorporating different technology, but which should have the same basic functions in terms of image production. In many cases, however, new equipment performs faster and/or produces different image quality in terms of resolution, contrast or proportion. Fundamental to NIMk's approach to the conservation of media art is the notion that the artist's intentions should guide our practice. To ensure this, we interview the artists about their attitudes to changing technology, the parameters of acceptable change, and their views about what aspects of the work are essential to preserve.

During the project *Inside Installations*, the Netherlands Media Art Institute (NIMk) and the Netherlands Institute for Cultural Heritage (ICN) researched if and how emulation can be used as a conservation strategy[6] on two *Imago*[7] case studies. These artworks represent the 'state of the art' technological achievements of the 1980s and early 1990s, which are rapidly becoming obsolete.

DOCAM describes emulating a work as 'devising a way of imitating the original look of the piece by different means. The term can be applied generally to any re-fabrication of an artwork's components, as is the case with the re-fabrications and reconfigurations that are essential to the preservation of conceptual, minimal, and performative art'.[8] The possible disadvantages of emulation include prohibitive costs and incompatibility with the artist's intention. Replacing non-functioning original equipment, hardware and software with current lookalike technical components could negatively impact the authentic state and integrity of the work. In media art, the original, authentic state often varies greatly as the concept develops, or changes each time the artwork is exhibited. But what kind of authenticity should be prioritized: conceptual authenticity faithful to the artist's intention, or contextual and functional authenticity conveying the original context and function of the work? In media art, a demonstration of full functionality is needed for a complete experience of the work. Display without functionality would result in a great loss of meaning.

It is obvious that, despite all our efforts, current technological equipment will wear out or become obsolete, and decisions have to be made about whether and how the equipment should be updated. Pip Laurenson has explored this issue at length, identifying functional significance as key to understanding the importance and use of the equipment: Is the equipment purely functional or not? Can the functionality of the equipment be mapped without discernible changes? Is the equipment visible or hidden from the viewer? Currently, the general response in these cases is to replace equipment or parts of equipment with the same mass-produced type, or with equipment having the same functionality. Replacing equipment when the look and feel of visible components and output belong to a particular moment in time that is related to the specific context or to the contemporary use of that technology could endanger the aesthetic and historical integrity. When emulating a work this look and feel is imitated as much as possible. Closely related to the guiding principle of respecting authenticity and integrity is the notion of the artist's intention and signature. In the case of (replacing obsolete) equipment, questions about active artistic involvement, modifications by the artist and specifications about equipment used by the artist are crucial. Consulting and interviewing artists

6 For the case studies and reports, see the *Inside Installations* website: www.inside-installations.org/artworks/artwork.php?r_id=15 (accessed July 2010)

7 *Imago, Fin de siècle in Dutch Contemporary Art* (1990) was a travelling exhibition and co-production of the Netherlands Office for Fine Arts (now called the Cultural Heritage Agency/RCE) and Netherlands Media Art Institute Montevideo/TBA. After the *Imago* tour, all the installations were acquired by ICN, the technical devices became part of the audiovisual service of NIMk, and all moving images were stored at NIMk as well.

8 In the realm of digital media, however, emulation has a specific definition. An emulator is a computer programme that 'fools' the original code into assuming that it is still running on its original equipment, thus enabling software from an outdated computer to run on a contemporary one, see www.docam.ca/glossaurus/view_Label php?id=108&lang=1 (accessed July 2010)

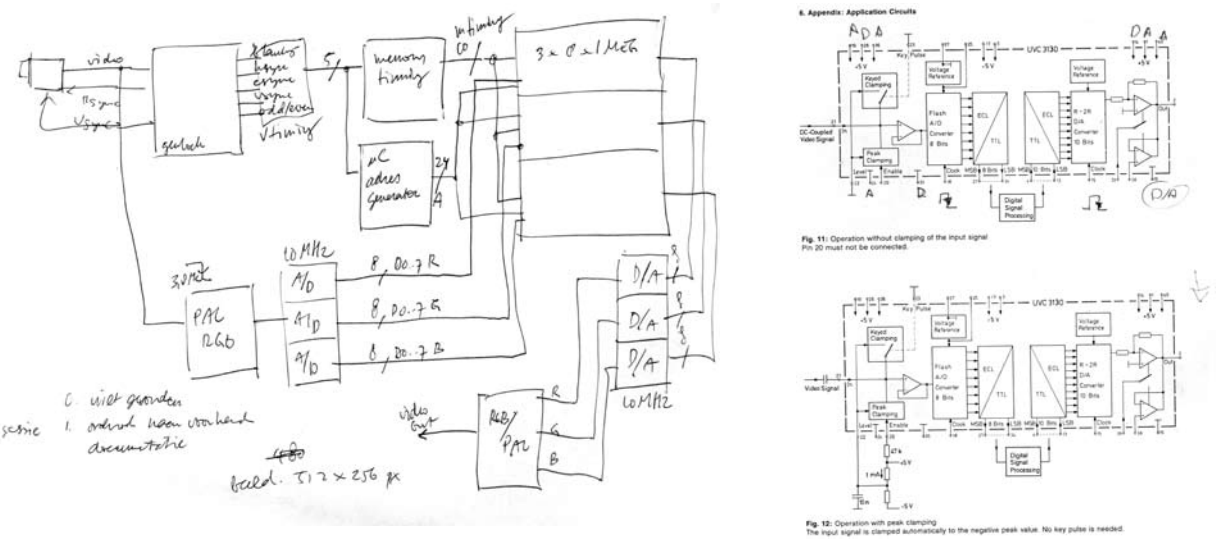
9 The framework, vocabulary and notions as researched and developed by Pip Laurenson are adopted here, see Pip Laurenson, 'The Management of Display Equipment in Time-based Media Installations', Tate Papers 2005, www.tate.org.uk/research/tateresearch/tatepapers/05spring/laurenson.htm (accessed July 2010)

[10] This concept is widespread in musical performance criticism. In performance studies it is seen as a discipline related to authenticity and examines how music was performed at the time it was composed.

when preservation problems relating to damage and obsolescence arise has become common practice over the last decade.[9] Fundamental questions related to emulation include: What preconditions should the emulation abide by with a view to reconstructing the original state of an artwork and its (future) preservation? How can the success of such investigations be measured? What criteria can be used to evaluate the result? How much of the historical context is lost for the audience? Documentation about the historical version is increasingly seen as compensation for this loss, following the notion of historically informed performance.[10]

Case study on emulation – Bill Spinhoven, *Albert's Ark, A Glance into the Fourth Dimension*, 1990

The primary focus of this case study was to determine what is important for the preservation of this artwork, and if and how emulation is an adequate conservation strategy. Since the original camera and computer (both consumer electronics), the computer programme designed by the artist, the mirror and the original blueprints were missing, the case study also explored if reconstruction and emulation based on documentation is an accurate way of preserving an artwork when a comparison with the original is impossible. *Albert's Ark* consists of a large circular sundial and a slanted pole ❶. The front of the *Ark* is marked by three pie-shaped segments that have been raised at the front to create space for a built-in TV monitor. The monitor is part of a closed circuit incorporating a camera, housed in the upper end of the pole, and a mirror attached to the pole. Through this mirror the camera captures movements and images of the visitor, which are displayed on the monitor. The 'Time Stretcher' device (built by the artist) distorts the images in the fourth dimension: time. When a visitor walks into the zone registered by the camera, the Time Stretcher starts processing the distortion of the recorded visitor movements and displays the result on the monitor. A major part of the experience of this installation relies on the viewer's participation, which can only be achieved if the installation is fully functional. Since the original Time Stretcher device was missing, full functionality was only possible through emulation. Emulation was therefore considered more important than the authenticity and historicity of the apparatus. The artist wrote an emulation proposal ❷ and



❷ Bill Spinhoven, *Albert's Ark*, 1990, emulation proposal. Old[LEFT] and new[RIGHT] ILLUSTRATION Bill Spinhoven.

❶ [LEFT] Bill Spinhoven, *Albert's Ark*, 1990 (Amsterdam, 1990) [RIGHT] Bill Spinhoven, *Alberts Ark*, 1990 (Seville, 1992) ❸ Jeffrey Shaw, *Revolution*, 1990 (Taipei, 1993).

re-installed the work to a fully functioning condition.
The original (missing) Sony CCD (CMOS) camera was replaced by a Hitachi CMOS camera. It was fortunate that these two cameras contain similar technology, as the artist considered the characteristic image quality produced by the original camera especially important. Visually and technically, *Albert's Ark* depends on the size and specifications of the tube monitor, a Sony Trinitron PVM 2130Q. This poses a problem for the future. Because the original monitor was available and in working order, the issue did not have to be addressed, but it will become pressing as soon as this (or similar) monitors start disappearing during the next decade. The original Time Stretcher was hardware based. Nowadays, emulating its effects to produce a similar look is much easier with software. It was therefore decided that the original hardware did not have to be rebuilt, but that its effects would be emulated through software. To avoid future obsolescence, open-source software was used whenever possible. The original mirror used in *Albert's Ark* was missing, so a new one was made using a reserve mirror in the artist's possession. The sundial was made from plywood and scored to imitate a stone or concrete surface, and the upper section of the pole, which had been damaged, was repaired by an ICN furniture restorer.
Albert's Ark was restored to working order in an updated and revised format. The missing Time Stretcher hardware was replaced by an up-to-date software emulation running on a Windows XP platform, in a way negating its 1980s heritage with regard to the technological achievements of that period. The emulation did result in a credible level of similarity with the original, and the presence of the original monitor meant that *Albert's Ark* was at least visually restored to its 'original' state. The existence of video documentation with images of the original *Ark* in action was a great help, as was an analysis of the blueprints of a similar, albeit older, version of the Time Stretcher.

Case study on emulation of Jeffrey Shaw, *Revolution: A Monument for the Television Revolution*, 1990

The main focus in this case study was examining how best to preserve custom-built and obsolete components, and to develop a strategy for long-term conservation in the form of an emulation plan. In the interactive installation *Revolution*, the visitor pushes a bar attached to a steel column with a built-in monitor on top of it ❸. Images are displayed on the monitor if the bar is rotated. Pushing the bar forward triggers 180 images depicting revolutionary moments in human history, which are displayed on the monitor. Rapidly turning the bar produces a vague blur of images, and pulling the bar backwards results in an image of a two millstones grinding corn. The visitor is thus an active participant who has to use physical effort to interact with this installation.[11]
The main preservation issues centred on the most vulnerable components: the 180 images depicting social revolutions on a Laserdisc, the Comlink EPROM[12] audio player, built by the artist, which produces the sound accompanying the images, and the monitor. Fortunately, all the original equipment was available and functioning.

[11] For weighing conservation options and meanings, values and statements of significance, see the chapter in this book titled 'Installation Art Subjected to Risk Assessment – Jeffrey Shaw's Revolution as Case Study'.

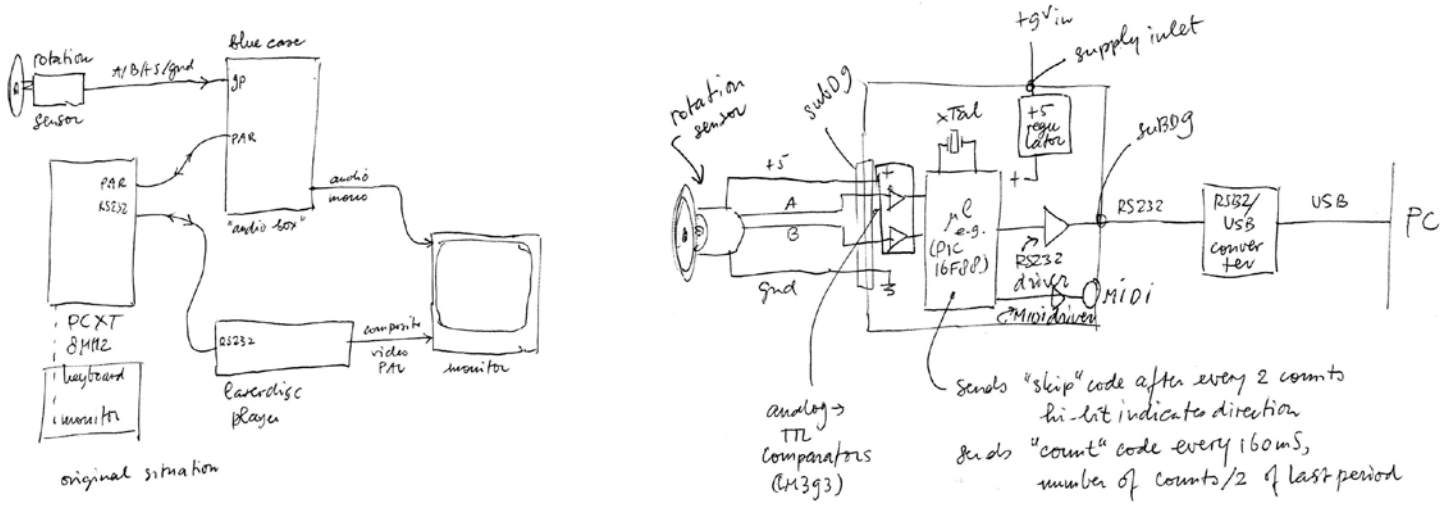
[12] EPROM, or Erasable Programmable Read-Only Memory.

Revolution can be divided into two parts, namely the sculpture (the push bar, the column, etc.), and the electronics (an analogue rotation sensor, a Personal Computer 8086 XT, a Sony DLP1500 Laserdisc player and a custom-built sample player/interface box). The rotation sensor sends signals to the Comlink, which triggers the sound and images and is crucial to the interactivity and to the (speed of the) sound and images. All the images used in *Revolution* are stored on Laserdisc. The other vital component for sound, image and interactivity of *Revolution* is the custom-built audio player of which the source code is unknown. The technology used in *Revolution* is over fifteen years old and within the next ten years one of the components will probably break down beyond repair. The PC or Laserdisc player could be replaced, but the custom-built hardware (EPROM) that interfaces the sensor and audio data cannot be rebuilt. If this installation is to be exhibited again in the (distant) future, the current hardware will have to be replaced. Emulation, or at least compiling an emulation plan ('in case of'), seemed to be the best strategy. The artist suggested 'forgetting about the video disc player and play all the images back from a computer [...] The audio should also come from this computer'. Clearly, emulation is in line with the artist's ideas. The case study team researched the possibilities of an emulation plan as a way of preserving the installation for the long term.

First, the images were captured from the Laserdisc and stored as digital uncompressed BMP files, the floppy disk (720K/ds/dd) was copied with Winimage, and the audio material (i.e., EPROMs) was digitally preserved. The relationship between movement and image, the timing of image sequences, the playback frequencies of the audio channel in relation to the speed of movement, etc., were analysed, measured and described. Together, these media, tables and dependencies form a description of the behaviour of the installation.[13] To test their accuracy, Paul Klomp, an autonomous artist who develops and creates hardware and software solutions for media and interactive works in collaboration with NIMk, wrote an emulation proposal using Pure Data,[14] based on these observations and schematics ❹. This emulated

[13] Because the schematics or source code of the electronics or the software were unavailable, Paul Klomp used the 'black box principle' to analyse the behaviour of the techniques used.

[14] Pure Data is an open-source modular programming environment.



❹ Jeffrey Shaw, *Revolution*, 1990, emulation proposal. Old (LEFT) and new (RIGHT) ILLUSTRATION Paul Jansen Klomp.

test was set up beside the original installation and the 'performances' of the images and sound were compared, revealing minor timing discrepancies. The emulating programme was adapted and the functionality was again compared to the original installation. The 'copy' – perhaps 'facsimile' is a better term – appeared to be reasonably precise.
The research resulted in a precise description of hardware and software, functionality and user interaction, which could be used as a basis for actual emulation. The hardware of this installation was emulated based on an analysis of its technique and functionality in a completely different way compared to the original hardware. The emulation does not fully replace the original hardware ❺ but it proves that there is an adequate description of the functionality of the installation and that the image and sound data was stored correctly.

Conclusions and further research

Each emulation is considered to be a balancing exercise between a reconstruction and a historically informed performance of the artwork, ideally authorized by the artist. The research demonstrated that emulation is a viable option for presenting the works in the future, firstly for the short- to mid-term conservation, as current technological equipment will also become obsolete, and secondly for the long term, at least to compare the functionality of the original set-up and its documentation. Emulation using open-source software should be prioritized, because freely available open-source code is better suited to preservation, as the platform can be recreated in the future (at a lower cost), even after the constituent components have become obsolete.
The importance of documentation for emulation cannot be underestimated. The final outcome of these case studies was that the installations were functioning again, and were accompanied by in-depth documentation and descriptions for their re-installation. The *Albert's Ark* case study resulted in a reconstructed and emulated version based on documentation, while the *Revolution* case study resulted in one original version in working condition, the techniques of which were emulated for future use. Some compromises were made regarding the ideal conservation strategy. Firstly, the most suitable hardware and software for long-term preservation were not used due to budgetary constraints and the allotted project time (not all programmes were available in open source). Secondly, several less-pressing problems were not addressed, such as the (future) issue regarding the use of tube monitors, and the possibilities of creating an open-source software application that emulates different kinds of cameras. The reason for this was that the original equipment was still available or was easily replaced by a similar product.
One of the insights gained was that now is the time to start collecting equipment for video- and computer-based installations from the 1980s, because we still have the equipment and the knowhow. Monitors, in particular, are regarded as the most urgent challenge facing preservation at the moment. It is clear that storing old formats, computers, and playback and presentation equipment is extremely important, but is not enough. More research has to be conducted into equipment, not only to ensure authentic and historically accurate presentations, but also to evaluate the possibilities of replacing and/or

❺ Jeffrey Shaw, *Revolution*, 1990, comparison of functionality.

emulating the equipment. Other insights included the need to define criteria for preconditions and to evaluate emulation, for clear guidelines, and for improved insights into reconstruction and emulation as a conservation strategy. This forms the foundation for further research into the advantages and disadvantages relating to storage, migration reconstruction and emulation as strategies for preserving obsolete equipment.[15] Furthermore, Bill Spinhoven was inspired by the case study and is developing a modular tool that will be installed in all his artworks which stores all the information that produced the work, the history of performances and subsequent changes by the artist. Furthermore, he will start emulating and virtualising his earlier works in collaboration with NIMk in late 2010. Finally, the cooperation with the artist, working with multiple disciplines, and the exchange with (inter)national experts and perspectives strengthened NIMk's network-based approach to sharing.

Acknowledgements
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[15] www.packed.be/en/projects/readmore/obsolete_apparatuur/ (accessed July 2010). Virtualisation involves running software within a virtual environment. Virtual environments are created when operating systems and desktop applications are emulated, and do not run directly on physical hardware. Virtualisation seems to be the next step in preservation. Virtualisation as a conservation strategy is explored by Tabea Lurk and Jürgen Enge; see www.aktivearchive.ch/fileuploads/pdfs/Virtualisation_Summary.pdf (accessed July 2010)

Installation Art Subjected to Risk Assessment – Jeffrey Shaw's *Revolution* as Case Study

Agnes W. Brokerhof, Tatja Scholte, Bart Ankersmit, Gaby Wijers and Simone Vermaat

Abstract

This paper describes the application of the risk assessment approach to an installation made by Jeffrey Shaw and Tjebbe van Tijen, *Revolution. A Monument for the Television Revolution* (1990) in order to prioritize preservation options. Its significance was determined, a description of its anatomy and identity was made and the contribution of the various components to the significance of the whole 'ensemble' was determined. Risks were identified and scenarios were developed describing expected loss of cultural value in the future. Since replacement, migration and emulation are common conservation strategies for installation art, the possibility to include recoverability of lost value in the assessment was explored. Compared with decisions curators and conservators would make based on their individual knowledge and experience, this rational, collaborative and structured risk assessment methodology provided increased insight in identity of the work and a ranking of the risks.

Introduction: the collection risk management approach

Collection risk management (CRM) has gradually made its way to the field of cultural heritage preservation. It deals with all threats to which objects and collections are being exposed, from light and climate to fire and theft, and thus places preventive conservation together with security and facility management in the context of collections management. The method consists of identifying possible risks, analysing and quantifying them, ranking them, and setting priorities in order to select options for reducing the relevant risks. It is a rational approach which enables well-argued risk-based decision-making (Waller 1994; Ashley-Smith 1999). After its initial application in natural history collections by Robert Waller in the 1990s, the methodology has been applied to an historic house museum (Brokerhof et al. 2005), archives (Pinheiro and Maceo 2009; Bülow, 2009) and digital library collections (Woodyard, 2005). The risk management approach has been taught in several international courses over the past years (Antomarchi et al. 2005). The CRM methodology has its origin in moveable collections in more traditional institutions. The Netherlands Institute for Cultural Heritage (ICN)[1] and the Netherlands Media Art Institute/Montevideo (NIMk) saw an opportunity to investigate its robustness by applying it to the preservation of an installation made by Jeffrey Shaw and Tjebbe van Tijen, *Revolution. A Monument for the Television Revolution* (1990).[2] This installation had been selected as one of the case studies in the *Inside Installations* project. A risk assessment workshop was organized aiming to rationalize the conservation research and

1 On 1 January 2011, the Netherlands Institute for Cultural Heritage / ICN became part of the Cultural Heritage Agency / RCE.

2 This case study was carried out during the *Inside Installations* project (2004-2007). See Vermaat (2005) and case study results at www.inside-installations.org/artworks/artwork.php?r_id=15 (accessed 16 August 2010)

decision-making process and to evaluate this methodology for a complex work of installation art. Much of the knowledge and information that was generated in the case study was fed into the risk assessment while the outcome of the risk assessment contributed to the case study. The case study team was expanded with risk management specialist to form the risk team which further consisted of the curator of collections of ICN, the collection manager and a technician of NIMk, a conservator, an art historian, a conservation scientist, a documentalist, and an 'ethnographic' observer who provided feedback on the process.[3] This article describes the eight steps of the risk assessment process and its outcomes.

Step 1. Making, history and context

The first step in conducting a risk assessment is to research the artist or culture of production, and the collection or work of art (history, material construction, condition and cultural context). For this case study, the team read the object files available at ICN and NIMk, and investigated (art historical) archival material. *Revolution* was re-installed at NIMk and was thoroughly examined by the team. The technician made a condition survey of its technical components. At the start of the project Jeffrey Shaw (who currently lives in Australia) was contacted by email. Co-creator Tjebbe van Tijen was interviewed in the course of the project.

Jeffrey Shaw is regarded as a pioneer of interactive technology-based art in which he applies media such as film, light, architecture and texts. *Revolution* was created at the end of a period in which Shaw experimented with a variety of media and interactivity with the viewer. Since 1977 Shaw lived and worked in Amsterdam. For most of his site- and time-specific projects he collaborated with other artists and technicians. *Revolution* was rooted in one of his last projects in the Netherlands carried out together with Van Tijen: *The Imaginary Museum of Revolution* (1988-1991).[4] In the same period the artists were asked to contribute a work to the travelling group exhibition *Imago: Fin de siècle in Dutch contemporary art*. This exhibition presented an overview of media art from an international group of artists living in the Netherlands at the time.[5] For this work Shaw and Van Tijen reused ingredients of the Imaginary Museum project, such as images of 200 years of revolutions and their 'heroes' (starting with the French Revolution and ending with the revolt in Romania in 1989). The images of 'revolutionary moments' were digitized and reworked copies from paintings, drawings and photographs. Tjebbe van Tijen was responsible for this visualization and he still has the original paper copies and his electronic database ❶.

Step 2. Anatomy, character and identity

From the outside, *Revolution* is a steel framework in the shape of a column and a Sony Trinitron monitor on top of it. The technology is built inside and consists of a computer, laserdisc player, an audio system and devices for interactivity. Attached to the frame is a bar which the visitor can turn around. When pushing the bar in a clockwise direction, images of revolutions appear which are accompanied by the sound of buzzing voices. Each of the 180 images can only be viewed for two degrees. To see all of the images the visitor

[3] The authors would like to thank Ramon Coelho (technician, NIMk), IJsbrand Hummelen (conservator, ICN), Thea van Oosten (conservation scientist, ICN), Nathalie Menke (documentalist), Vivian van Saaze (ethnographic observer) and Paul Klomp (Klomp Kunst & Electro) for contributing their knowledge and experience to the risk assessment.

[4] The project was submitted to the city of Paris for the commemoration of the bicentenary of the French Revolution but was not selected. It was, however, partly realized in The Hague. For this occasion, a database of over 2,000 images was created by Tjebbe van Tijens. His website offers a description of the *Imaginary Museum of Revolutions* project. See http://imaginarymuseum-archive.org/AAA/index.html#30 (search for number 30) (accessed 16 August 2010)

[5] In total, 14 prominent artists participated in this exhibition. *Imago* travelled for four years around the world. Afterwards all works were acquired by the Netherlands Office of Fine Arts.

❶ Jeffrey Shaw and Tjebbe van Tijen, *Revolution. A Monument for the Television Revolution*, 1990, at the Imago exhibition, Taipei, 1993.

must slowly turn the installation full circle (360 degrees), which requires considerable physical effort. The pressure influences the speed of rotation and consequently the rate at which the images are shown and the pitch and density of the sound. When pulling the bar backwards, a video image appears of a millstone grinding grain to flour. The interactive role of the visitor is crucial in this work. Only by acting, that is, by pushing the bar, is one able to experience the work. The images do not change by themselves.

There is no artist statement for *Revolution*. Although both artists were contacted they did not show an overwhelming interest in conservation decisions. When Shaw was notified that much of the support technology had become obsolete he suggested: 'Forget about the video disc player and play all the images back from a computer [...]. Also the audio should come from this computer'. He wished the team good luck with their enterprise.[6] Hence it was concluded by the team that he would agree with emulating the work as long as it guaranteed a similar experience of its initial 'look and feel'. Van Tijen took a different perspective: '[...] the realization of this kind of project is relative. The concept is that the project could have different appearances up till today. Each realisation is just one manifestation. The whole project is the concept. It could be realized differently over and over again and still would be the same work'.[7] From the interview it became clear that Van Tijen considered *Revolution* just an occasional spin-off of the larger project which he would have liked to continue. However, he was not against its conservation and provided some comments which have been included in the considerations.

At the time of the risk assessment workshop the case study was still in full swing. The case study team had identified a lack of essential information but had only just started to fill the gaps in knowledge. There was a patch diagram, some photographs, some video fragments of 'installation moments' at *Imago*, and a list with descriptions of the constituting parts. There was a basic registration of the work but no technical documentation such as source code, circuit diagrams, or sound and image data. The risk assessment was performed within the context of this lack of information.

The risk team described *Revolution* as an interactive video sculpture because of its 'fixed' appearance and spatial dimensions (column, monitor, bar). Three characteristics were thought to be decisive for its identity. Firstly, interactivity, as a conceptual and physical component which is related to the pressure of the body against the push bar. Secondly, visual appearance, for which the dimensions of the column and the Sony monitor are decisive, as well as the quality and rate of the images. Also, the specific 'look and feel' of the 1990s is a determining characteristic of the visual appearance. In the interview, Van Tijen said that resolution of the images (which tremble slightly due to the limitations in storage capacity of the laserdisc at that time) could be 'emulated' or simulated to keep this appearance, but was not strictly necessary. However, he stressed the fact that all images should appear (no dropouts) and that physical effort should be needed for pushing the column around its axis. The monitor and frame should stay the same.[8] The third component is audio, the sound of buzzing voices and the millstones that are reproduced together with the images, for which the loudness, pitch and density are essential.

6 Email correspondence between Jeffrey Shaw and Simone Vermaat, 16 August 2004.

7 Interview with Tjebbe van Tijen by Gaby Wijers and Tatja Scholte, 10 March 2006 (translation TS).

8 Ibid.

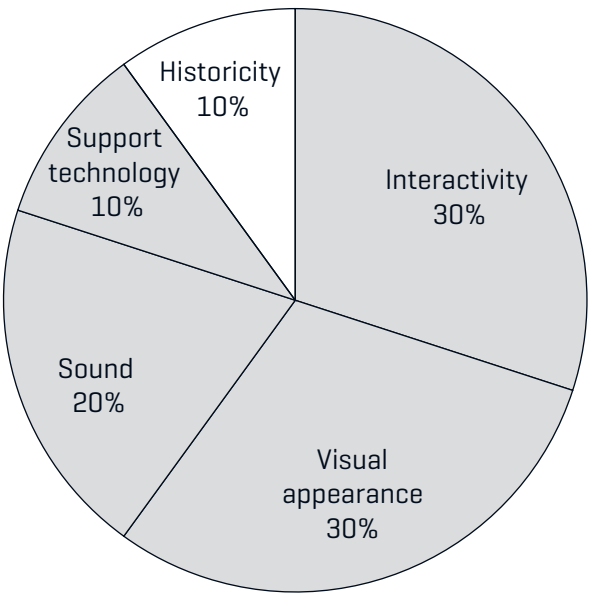
Step 3. Meaning, values and statement of significance

As risk is defined as the 'the expected loss of value', the initial cultural value of an object or collection needs to be established. Therefore, the next step in the process was to assess the meaning and values and draft a statement of significance based on the information available including the re-installation of the work itself. In order to assess the significance of *Revolution* it was held against the criteria of the Australian model Significance 2.0 (Russell and Winkworth 2009).[9] It is beyond the scope of this article to explain the procedure and criteria used in this model but the outcomes are summarized here. The method assesses significance against four primary criteria (determining whether there is any cultural significance) and four comparative criteria (determining the degree of significance). The first primary criterion looks at artistic/aesthetic values which in contemporary art conservation are often referred to as 'the heart of the artwork'. For *Revolution* these values were particularly recognized in the concept of interactivity and the sculptural 'appearance' as well as in the manner the images and sound are being processed. Its functionality is complex and some parts were custom-made by Shaw and the technicians, such as the audio box (eproms) and a device (comlink) for linking sound and images to the pace of the visitor. The second primary criterion, historic values, was recognized in the (art-) historical period in which media art came into maturity in the 1990s. *Revolution* was furthermore considered to have historical value because of its content; it is full of historical references. Also the role of television in recent history and the particular quality and shape of the monitor are considered to provide an association with certain time periods. The third criterion dealing with informational/research values was in fact introduced by the profound research on the work carried out during *Inside Installations* and the risk assessment. According to the team this value might be considered less significant by future generations. Social values make up the fourth primary criterion. This looks at the current association of a specific group of people with an object or collection. *Revolution* represents the events and happenings organized by Shaw and Van Tijen during two decades of social-artistic experiment. At the time of creation it had a strong association with the artists and art audiences in the 1990s and the involvement of the Dutch government in the art scene of the 1990s could also be considered as a socio-political, historical phenomenon from that same period. Yet in the course of time these social values have become historic values.

Of the four comparative criteria the risk team considered condition/completeness to be paramount. The constituting parts of the installation are integral parts of an 'ensemble' which should have the same look and feel, even if technical elements would have to be replaced. If *Revolution* were to lose its 'functionality', it would also lose its 'identity' as an interactive video sculpture and its metal frame would only be an 'historic document'. Another comparative criterion is provenance, which for *Revolution* is well documented. Because it is part of *Imago* it is still part of a larger contextual ensemble. As long as the information associated with its initial context and exhibition history is well kept, the rich provenance enhances the artistic value. During his twenty-year-long stay in the Netherlands, Jeffrey Shaw produced many site-specific

[9] See for description of primary and comparative criteria, Russell, R. and Winkworth, K. (2009), pp 39-40.

events and installations of which only a small number of physical works have been preserved. This is a reason why *Revolution* answers to the comparative criterion of rarity/representativeness. Within the cultural context of the Netherlands, it is even his only work in a public collection. Finally, the interpretive capacity (usability and relevance to the organization's mission) could in this case be related to the possibility of the work to still give the visitor the meaningful experience as originally intended, thus enhancing artistic, historic and research values. Based on the assessment against these eight criteria, a statement of significance could be drafted and quantified.
The 'value distribution pie' ❷ shows how the various values and features con-



❷ Value distribution pie for Jeffrey Shaw's *Revolution*. Artistic/aesthetic values in gray; historic value in white.

tribute to the total significance of the installation. The two main values are artistic/aesthetic, covering 90 per cent of the total significance, subdivided in the identity determining characteristics: interactivity, visual appearance, sound and support technique. By considering what would remain if one of these characteristics were lost, its contribution to the total value was determined. Likewise, by considering what would remain if the entire interactive functionality (and thus experience of the work) were to fail, it was determined that the leftover sculptural 'corpse' of the metal frame holding the non-functional components still contributed historic and documentary values to the extent of 10 per cent of the total significance.

Step 4. Linking tangible and sensorial aspects to significance

During the next step the above-mentioned values were linked to the components determining the 'look and feel' of the work. For example, the experience of sound, image and motion could directly be related to the resistance of the push bar, the loudness of the sound, the rate of the images, and the brightness and calibration of the monitor. An additional basic requirement is a well-functioning support technology. Together, all these factors form a

complex of interdependencies (both tangible and intangible) that should be taken into account in order to estimate the impact of expected changes in the future. During the case study a description of all components had been made and several guidelines had been put together. These overviews as well as discussions in the risk team served as a basis for the assessment of a 'loss of value' in case one of the elements would fail. For example, if the eprom audio box (linking sound to image and motion) were to fail, the interactivity would be affected severely. Based on the assessment, elements which are responsible for the interactive experience (tracking wheel, decoder, Comlink, eprom audio box, laserdisc and player, monitor) were considered to be vital for the experience, look and feel of the installation and gained a different status from the support technology (PC, keyboard, floppy disc and cables).

Step 5. Identification of risks

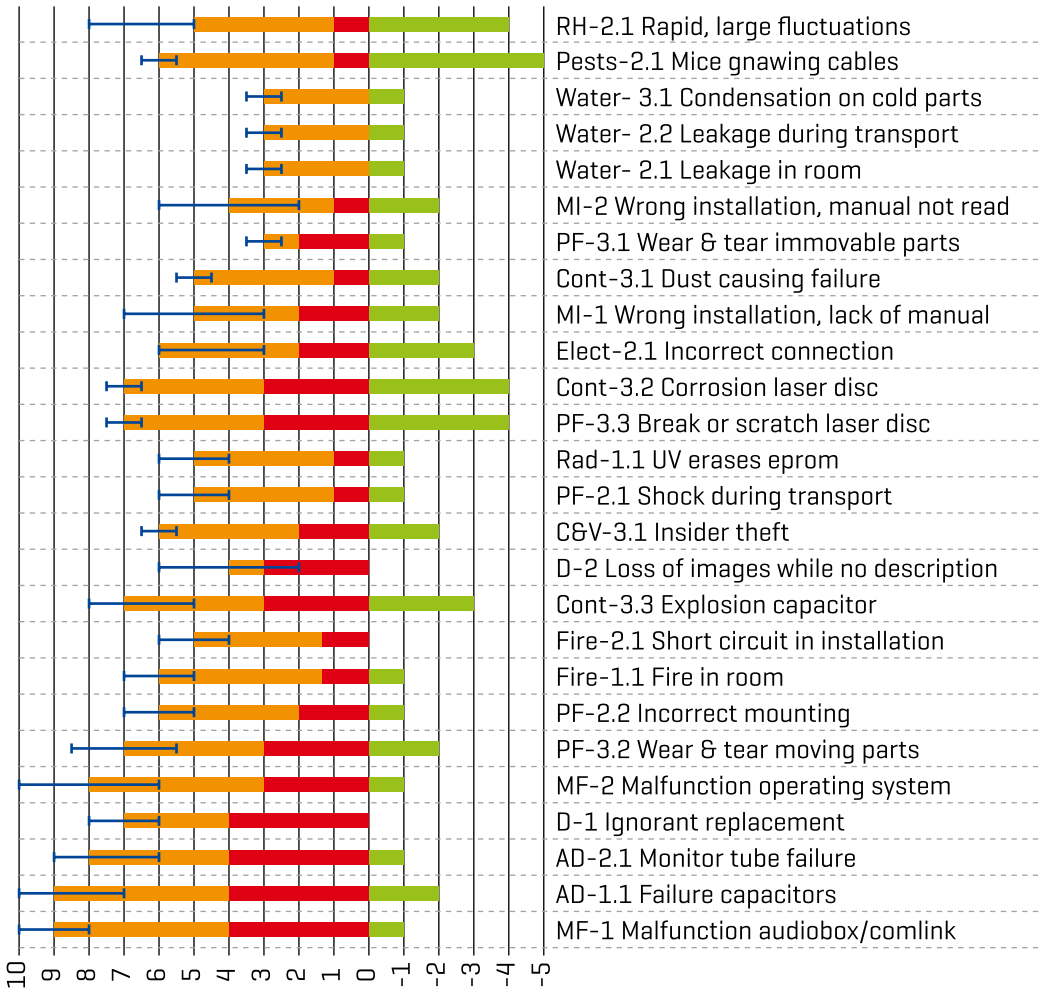
For a proper risk assessment it is important to identify all relevant risks. Experiences from the past and condition surveys give a good starting point for their identification, but in many cases it is the unfamiliar and the invisible threats that pose the biggest risk. During the workshop risks were identified by combining two common approaches: hazard-based identification (using Michalski's and Waller's ten 'agents of deterioration'[10], developing a scenario from source to effect) and fault tree analysis (working back from adverse effect to sources). The exercise resulted in the addition of 'electricity' and 'autonomous decay' to the list of agents. The intangible agents were divided into 'dissociation' (effecting conceptual integrity), malfunction (effecting functional integrity) and mal-interpretation (effecting conceptual and contextual integrity). For the risk assessment a brainstorm session was conducted with the team in order to list what could go wrong and cause loss of value to *Revolution*. This list was brought back to the 40 most relevant risks of which 26 were fully analysed and quantified.

Step 6. Expected loss of value and recoverability

To quantify 'the expected loss of value', risk is expressed as the product of its probability (how often or how soon a loss may occur) and its consequence (how bad the loss will be). For each of the identified risks the most likely scenario was developed, describing cause and effect and the pathway in between, taking into account factors that might magnify or mitigate the final impact. For each scenario the probability was given an A score between 1 (unlikely) and 5 (almost certain). Similarly the consequence was given a B score between 1 (minute) and 5 (total loss). Preservation of media technology is a proactive process which never ends. Replacement, reformatting, migration and emulation are ways to prevent loss of essential values and are, if they meet the right conditions, accepted practices in conservation of contemporary art (Keene 2002). These strategies have a strong influence on the ultimate loss of value. Therefore, an additional element was incorporated in assessing the risks: recovery of 'lost values', taking into account both technical possibility of recoverability and costs, for which a C score was given between 1 (small recovery possible or full recovery at great expense) and 5 (full recovery possible at low cost).

[10] Michalski and Waller work with ten agents of deterioration: physical forces, fire, water, thieves and vandals, pests, contaminants, radiation, incorrect temperature, incorrect relative humidity and dissociation.

For all 26 risks on the shortlist, it was estimated how soon a material change or failure of components would happen and an A score was given. Secondly, the expected loss of value was assessed by considering which characteristics would be affected and how bad this would be in terms of taking a bite out of the 'value distribution pie' ❷, so that a B score could be given. Adding the A and B scores gives the 'magnitude of risks' (the positive red and orange bars in ❸. This magnitude of risk was corrected with recoverability (subtracting the C- core). For example, a blown fuse can easily be replaced against low costs, while an obsolete and broken laserdisc cannot be recovered. Recoverability therefore needs to be specified for each of the components and set against the other two scores, (the negative green bars in ❸).



❸ Magnitude of risks with A score in red, B score in orange and C score as negative in green; ranked from highest to lowest score for the total magnitude of risk. Blue bars indicate the uncertainty factor.

Finally, the factor of uncertainty with which the calculated risk might happen will influence the decision-making based on a risk assessment. Big risks with a small uncertainty will ask for immediate action, whereas risks with a large uncertainty may require more research and increasing certainty before action is taken.

Step 7. Risks and preservation options

The risk team assigned the biggest threats for *Revolution* to malfunctioning, autonomous decay and dissociation. The biggest risks for malfunctioning of technical components was failure of the custom-made audio box and its comlink. The lack of schematics of technical functionality is a magnifying factor. Since the urgency is high and the impact is so great, removing this magnifying factor improves recoverability and thus reduces the risk considerably. A major dissociation risk was the loss of audio data kept inside the custom-made audio box. The lack of audio documentation was another magnifying factor for any failure to components responsible for producing sound. If functionality failed, the absence of documentation would make any reconstruction an interpretation of the artistic initial design. Similarly, the laserdisc with 180 images and video of the millstones had no description of what they are, where they came from or in which order they need to be played. Additionally, the laserdisc contains all the other works of *Imago*. This lack of information is a magnifying factor for risks regarding any failure to play the laserdiscs. The risk would be reduced by a proper registration of the images and storage under the right conditions. It would further be reduced by archiving the image database which Tjebbe van Tijen has.

Capturing the audio and image data and transcribing the operating system of the PC into open-source codes would ensure the possibility of emulation in the future. This would recover the artistic/aesthetic value but still imply loss of historical value. Reducing this magnifying factor formed a major part of the parallel case study. The best option for preserving its functionality was analysing all in- and output signals and read out the audio data from the eproms, on the basis of which a plan for its emulation could be drafted (and tested in the simulation). However, even when all (technical) elements of the installation have been properly analysed and documented, the degree of recovery of the artistic/aesthetic value in the future would still depend on the quality of the emulation. Autonomous decay of the capacitors (affecting all electronic components) might in the (near) future result in leakage and consequently total failure of the installation. Since the capacitors have almost reached the end of their lifespan (average 20 years) this has become an urgent major risk. Even though lost values can be recovered by replacing the capacitors, the action might be expensive.

Finally, any failure of the video monitor would cause loss of visual appearance and experience of *Revolution*. There is a good chance this will happen within the next few years. The monitor determines both the aesthetic look of the installation and its historicity; its appearance is determined by its size and position within the metal frame, as well as by the high quality of the screen. Sony monitors of this type are no longer produced and only a few are left in NIMk. Although one of the options would be to replace the inside of the monitor and keep its visual appearance, it is still a matter to be discussed with the artists.

Step 8. Deciding on the preservation options

The biggest risks have their urgency in common. They are expected to cause a major loss in value within the next few years. Some of the risks are unavoid-

able as they are related to processes that can hardly be stopped or slowed down, such as the autonomous decay of the capacitors. Their reduction can only be achieved by trying to reduce the impact, mostly by being prepared to recover as much as possible of the lost value at the lowest possible cost. In this case study, a major risk was dissociation. Risk reduction requires technical schemes of and data read-outs from the custom-made audio box and laserdisc. The technical analysis and proper registration and documentation will avoid a total loss in the future (which in the case study was followed by an emulated test version). Another preservation measure should be a regular checking of the capacitors and replacing them before their leakage would cause damage to the electronic parts. Oneissue that remains unresolved is the replacement or adjustment of the monitor.

Conclusion: Reality check

This experiment was based on the risk assessment methodology developed for collections. With a few adjustments it proved to be sufficiently robust to be applicable to installation art. For this occasion, the commonly used scores to assess risks were simplified to 'how fast', 'how bad' and a score for 'how much lost value can be recovered' was added, which worked well. Yet, more experiments should be made before it can be confirmed that this is a useful approach for technology-based installation art in general. Analysing the values attributed to the installation and the relationship between the physical work and its intended interactivity to draw up a statement of significance led to an increased understanding of the identity of the work and made it possible to express material changes and failure in terms of loss of value and to quantify the risks. The multidisciplinary team, and especially the fact that the technician who had been present at NIMk during the creation of *Revolution* was still around, were extremely important for the exercise.

The case study on *Revolution* had already revealed much of its weaknesses and threats. What the risk assessment added to this was a ranking of the threats by attributing numbers to 'gut feelings'. The vulnerability of small electrical parts, such as the capacitors, proved to be far more crucial than expected; their autonomous decay was not considered to be such a big risk before. The inclusion of recoverability in the assessment provided clear insight into the difference between actual causes of failure and the magnifying factors which ultimately have such a strong impact on the risk. Given the inherent limited lifespan of technical components, sometimes the most effective option for risk reduction is embedded in reducing these magnifying factors. In this case, risk reduction was in the proper analysis and documentation of the technique and the realization of the emulated test version. If *Revolution* would fail in the future, which seems to be inevitable, it can be emulated at reasonable costs.

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Mart Viljus, *Trademarks* [TM], 1997–2006. PHOTO Mart Viljus.

Hilkka Hiiop

For me as a conservator, the term ‘installation’ does not necessarily refer only to artworks which are called installations (by the artist or curator), but also those works that consist of parts that need to be installed. For example; a single object that due to its size needs to be stored in separate parts. An installation is the type of artwork that needs careful and precise documentation; recording both the material and immaterial contexts of the work. The type, format and exact content of this documentation depends on the interpretation of the particular work and should be defined with the aim of gathering sufficient information to adequately preserve the piece for future generations. In other words, the documentation needs to be extensive enough so that the museum is capable of installing the work without the help of the artist.

The (neo)conceptual artwork Trademarks (TM) by Estonian artist Mart Viljus, acquired by the Art Museum of Estonia / KUMU in 2007, is a set of supermarket shelves lined with dozens of different products that are well known to consumers. The artist confuses the viewer by modifying the original product labels using digital techniques. The audience sees labels such as Pedigree cornflakes, Coca-Cola ketchup, and Snickers canned fish. As the products contain perishable foodstuffs, they cannot be preserved in the storage for a long time. To ensure the continuation of this work, the artist created clear instructions including photographs on how to replace containers by buying new ones from the supermarket and changing the labels as well as providing the museum with the digital files of the fake labels. The work the museum acquired was in fact a CD with digital files as well as a precise recording of how the work should be recreated by a conservator.

In my opinion, in order to create documentation that is extensive enough to be able to recreate such complex works for the future it is important to collaborate, not only with the artist but also with all museum professionals involved in the process.

Part 3

Participants in the Process

The Artist Is Involved!

DOCUMENTING COMPLEX WORKS OF ART IN COOPERATION WITH THE ARTIST

Frederika Huys

Abstract

From the moment the work is included in a collection, there are usually several conservation aspects to be investigated. For museums, it is important to investigate the interaction with the work of art, for example, the way in which installations are exhibited and conserved. Installations have extremely diverse characteristics and are probably the most difficult cases to record. Aspects like variability, reproduction, site specificity, performance, electronic media and interaction are an integral part of many works. Ready-made answers for dealing with these works do not exist. Whenever a work is purchased, it means looking for a conservation strategy that is appropriate for both the museum and the artist. Interactive research, resulting in guidelines for individual works of art, is the basis and often the only guarantee for the continued existence of the work. Should no communication exist in this regard, then one would have no idea of how to tackle these works after their initial installation.

Introduction

It is in the interest of both the artist and the museum to archive information about materials, technologies, and installation criteria for complex artworks. As far as the artist is concerned, the incorporation of the work of art into a collection depends on the possibility of managing and conserving it. Cooperation with the artist can take several forms; from short conversations to years of dialogue. Sometimes one or more interviews are sufficient to gather the necessary information. In other cases, a long-term relationship is initiated so as to learn about the possibilities and limitations of the installation. This article focuses on various approaches to and experiences in interviewing and cooperating with artists. Case studies are cited for discussions of both traditional and more personal methods. At the S.M.A.K., the form of the enquiry is very much geared to the type of artwork and the individual character of the artist. This means that the form of cooperation between the conservation department and the artist is not fixed in advance. The form is determined by the questions the work raises. In addition, this article mentions some important initiatives that have been taken to stimulate the interviewing of and cooperation with artists. To give an example, the International Network for the Conservation of Contemporary Art / INCCA distributes guidelines and runs workshops on the more thorough integration of these methods into everyday conservation practice.

❶ Suchan Kinoshita is showing how to reproduce a part of her work. PHOTO COPYRIGHT S.M.A.K.

❷ Detail of the installation *Interminável*; [BELOW] the artist Arthur Barrio at work. PHOTO COPYRIGHT S.M.A.K.

The viewpoint of the artist

Cooperation with artists can be achieved in all sorts of ways. The artist can make a start by drawing up guidelines or creating a manual for the work. The instructions drawn up by artists often indicate directly how the artist sees his work. There are manuals from artists for putting on a performance, for setting up a complex installation and for the replacement of parts and technical descriptions for electronic works, which are usually set up very precisely. For a museum, it is ideal when the artist takes the initial steps. This means that from the beginning of the research process there is a mutual interest in underpinning the work properly. The museum will later add information that is of importance in the future management of the work, such as exact plans for the set-up and lists of questions regarding conservation and ageing.
It is only possible to conserve and to document a work of art properly if we know 'what is important for the work?' To investigate this from the viewpoint of the artist, two workshops were organized during the international symposium *Contemporary Art: Who Cares?* (Amsterdam, 2010). In these workshops artists gave their opinions on cooperating with museums.[1] Nedko Solakov (Bulgaria, 1957) was the guest on the first day. Solakov likes to be closely involved in the presentation and preservation of his work. He has written guidelines for certain installations and performances. He also wants to keep track of the works in museum collections. He is actively involved and considers this necessary in order to make certain adjustments at a later stage. He thinks that the documentation of a work should also include a description of its 'atmosphere'. This cannot be captured in precise measurements, and in the workshop it was suggested that methods from other disciplines should be used in this documentation process. One might describe the 'atmosphere' of a work of art like a piece of music in which *allegro* and *piano* are used to define a sense of softness or loudness. Poetry, too is able to outline an image of a space while remaining immaterial. The second workshop, with Andreas Slominski (Germany, 1959), was organised in the same way. He does not see the integration of his works into museum collections as a long process. He does consider it important that his works are kept and shown well. He likes to explain what is important about each work, but the rest is up to the museum. He wants to have time to experience the present, not always to be looking backwards and making adjustments when necessary.
The involvement of the artist can also change over time. The artist can become more or less involved, depending on the stability and on the specific needs of the work. In certain cases it is clear from the beginning what tools have to be created to present the work well. For instance, murals that can be repainted are backed up by a detailed plan and a description of the right materials and techniques. The artist can carry out the painting and a video recording can be made to clarify the technique. This documentation can be compiled in a short time and few questions arise about the possibility of re-executing such works.

Reproducing parts of an installation and making an instructional film

Some works are made of materials that are not durable. In such instances it is often more appropriate to replace them than to repair any damage and

[1] The workshops were moderated by Philippe Van Cauteren, artistic director of the Municipal Museum of Contemporary Art, Ghent/ Belgium (S.M.A.K.) and by Ulrich Lang, head of conservation at the Museum for Modern Art in Frankfurt Am Main/ Germany (MMK).

return it to the precise state it was in before. In an instructional video, the artist shows how a work or a part of a work should be made again. Filming this artistic process is the best way of retaining this practical technique. This method is used above all when the actions have to be shown that must be performed to reproduce or recreate a work. These actions would not be described so clearly in an interview or conversation. It is the conservation researcher's task, together with the artist, to determine which tools need to be created to provide the underpinning for the work.
Suchan Kinoshita's work *Voorstelling*, for example, includes a curtain in polyurethane foam which the artist made herself. It is extremely fragile, but according to the artist it can be reproduced. It was tried out and a practical film was made in which she shows how the movements have to be carried out in order to reproduce this component ❶.

Doing an artist interview

Interviews are the most efficient way of passing on knowledge and information. A motivated interviewer and an excellent preparation are necessary to achieve good results. It is not always easy to talk about an idea, a concept or a feeling from which a work of art arose. The materials are often a spontaneous choice and their use is part of the artistic process. For the artist, talking about them can be compared to undergoing a medical examination. The intention is, after all, that one finds out in detail why, when and how certain choices were made. The emotional factor or empathy of the interviewer is just as important as his knowledge of the artist's oeuvre.
An artist interview can be based on questions and problems with the conservation of one single artwork. In-depth questions are asked on the concept, the creation and the present condition of the work. Several conservation strategies will be discussed with the artist and the questions in these interviews are mostly very precise. The interview is set up to discuss certain aspects of a single work and these interviews are easier to organize in the course of the daily routine. Within the framework of presentation and conservation, one is often faced with pressing questions and the artist is almost always very much involved in this. An artist interview can also be set up to investigate the oeuvre of the artist as a more comprehensive approach. The structure can vary according to the need for information, whether it relates to the oeuvre in general or to a certain type of artwork. The questions in these interviews are open in nature and both the artist and the interviewer need to invest a great deal of time.
To prepare the interview, some homework should be done by reading other, earlier interviews with the artist, documentation and history available at the museum. It is very important to do a reconstruction of the history of the work of art in the institution so as to find out what has been bought and which parties were involved. It is recommended to write down clear and concise preparatory notes.
The importance of the artist interview is by now widely accepted. In the course of time awareness has increased and today it is considered an indispensable factor in conservation practice for modern and contemporary art. In recent decades a considerable number of well-respected individual conservators

and institutes have achieved impressive results by collecting information from artists. Most museums and other collections are now associated with the INCCA network, where all sorts of information on contemporary art can be exchanged. Information on and links to audio and video recordings of conversations can be found on the INCCA website. Conservators regularly train in conducting interviews and are faced with the challenge of creating good source material. On the one hand, one has to take advantage of what the artist says and, on the other, one has to feed and guide the conversation in the right direction.

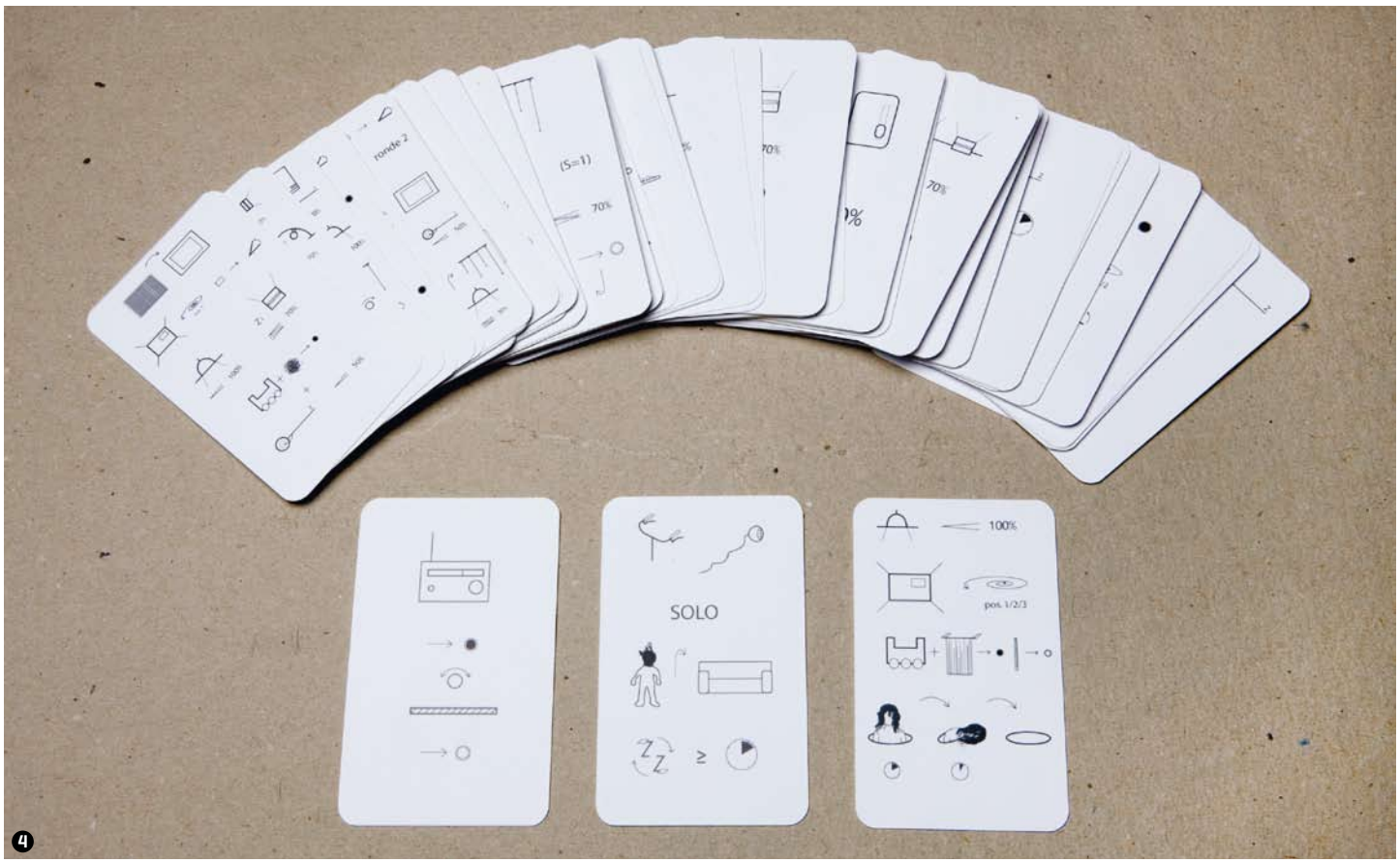
Redefining the work together with the artist

In some cases it is not clear at the start of the research process what the best tools and methods for cooperation will be. Neither the artist nor the museum knows the possibilities and limitations of the work. In this case the research becomes an interactive process in which the outcome may assume a different form from that of the original work. The conservation department of the museum wants to offer artists the possibility of developing new, individual solutions suited to their work.

Some works cannot be carried out again because they are so closely associated with the artist himself and with his artistic input. Arthur Barrio's work *Interminável*, for example, is generated out of the artist's dialogue with the space ❷. The work of art was made using ephemeral materials: coffee dregs lie spread over the floor, together with crumpled paper, flakes of Indian lacquer and a pile of one thousand loaves of bread. He knocked pieces of plaster out of the wall, applied splashes of coffee and wrote texts in felt-tip pen, adding the periods of time he had worked on them. This was lit by a few small light bulbs suspended from heavy cables. Altogether, these elements provide the onlooker with a multi-sensory experience. *Interminável* takes its name from the never-ending process of evolution and transformation. The work of art is never finished and with each new production, a new layer will be developed. New additions and ideas each complement the work, taking it one stage further and introducing nuances. The S.M.A.K. purchased *Interminável* in 2005, despite the fact that this installation no longer exists in its original form. What remains is a *CadernoLivro*, made by the artist during the setting-up process. It contains thoughts about the set-up and the materials, plus a number of comments. *Interminável* will be conserved by means of documentation, because the museum cannot copy the artist's drawings and writings. An exact re-execution of the initial set-up would not do full justice to the work. The artist firmly maintained that only he could create the *Interminável* installation. The museum is able to present the various *CadernoLivros* in glass cases and thereby show the artist's intervention in the room. The way this installation is preserved emerges very much from the views of the artist.

Artist participation in the process of re-presenting performances

One cannot preserve a temporary performance or physical action as it was the first time it was performed. Nevertheless, artists may choose to figure out a way in which the performance can be carried out again or documented like a musical score or a play.



❸ The 'gadget man' or 'performer' in action. PHOTO COPYRIGHT S.M.A.K. ❹ A few examples of the card game with icons. PHOTO COPYRIGHT S.M.A.K.

The artist Marina Abramovic for example takes a stand in the preservation of current performance art. She considers that the presentation of performances too often makes a sad and nostalgic impression. In her current exhibitions she often reconstructs performance spaces from the past in order to be able to show works with sufficient feeling and quality. This would give performance works in museums a better setting. A superb example of this is the retrospective performance exhibition held by the Museum of Modern Art in New York in 2010. About 50 historical performance works were made available to the general public. The exhibition comprised the first live re-performances of Abramovic's work carried out by other people in a museum setting. This idea demonstrated that more can be done in terms of presentation than simply showing a few sombre photos or an occasional video. Her ideal seems to be to establish a long-term dialogue with a museum so that changes and developments in her work can be considered as something natural and positive.[2]
Efforts are also being made in museums to set up revivals of existing performances or to show recorded material. Some artists are themselves looking for a form and testing it out with the institutions. At the S.M.A.K., a card game was developed with the artist Suchan Kinoshita that makes it possible to preserve her performance in a lively way. This solution was created in cooperation with the artist. The work of art consists of a large cabin divided in two by a wall with a window. The viewers can sit on benches on one side and watch the 'performance'. On the other side is a room where a whole show can be performed. A bicycle, a model train, a slide show and other things are controlled by a performer, whom the artist herself calls 'the gadget man' ❸. From 1997 to 2006 the museum did not know how to deal with this work. We know that a manual is necessary to carry out a performance anew, but who has to write this manual and how is it to be done? In Suchan's case we were fortunate and she introduced the idea of preserving a lively performance by means of a card game with icons ❹. Every day, the performer shuffles the cards in this game, with icons consisting of drawings of all the objects in the installation, and then 10 are chosen. The sequence of actions on the cards makes up the performance that will be carried out that day. It was not only the objects, but also the sound and lighting that were described in this way. So there are cards for objects, actions, lighting and sound.
In this way, the S.M.A.K. will be able to re-enact Kinoshita's performance in the future, in a way that suits both the artist and the museum. We consider this cooperation to have been a success because a workable tool was created so that the work can continue to exist without the artist necessarily having to be involved. In addition to the card game, the museum also compiled a performance manual with guidelines on the profile and actions of the performer.

Long-term cooperation between the artist and the museum

Site-specific installations are often studied by setting them up several times in different ways. This enables the future possibilities and limitations to be discussed with the artist. In this situation, the artist often finds himself in unknown territory too, and in many cases can only come up with solutions as work progresses. Some artists even find that their work is only at its best when it is interpreted and always presented in a different way. This is often

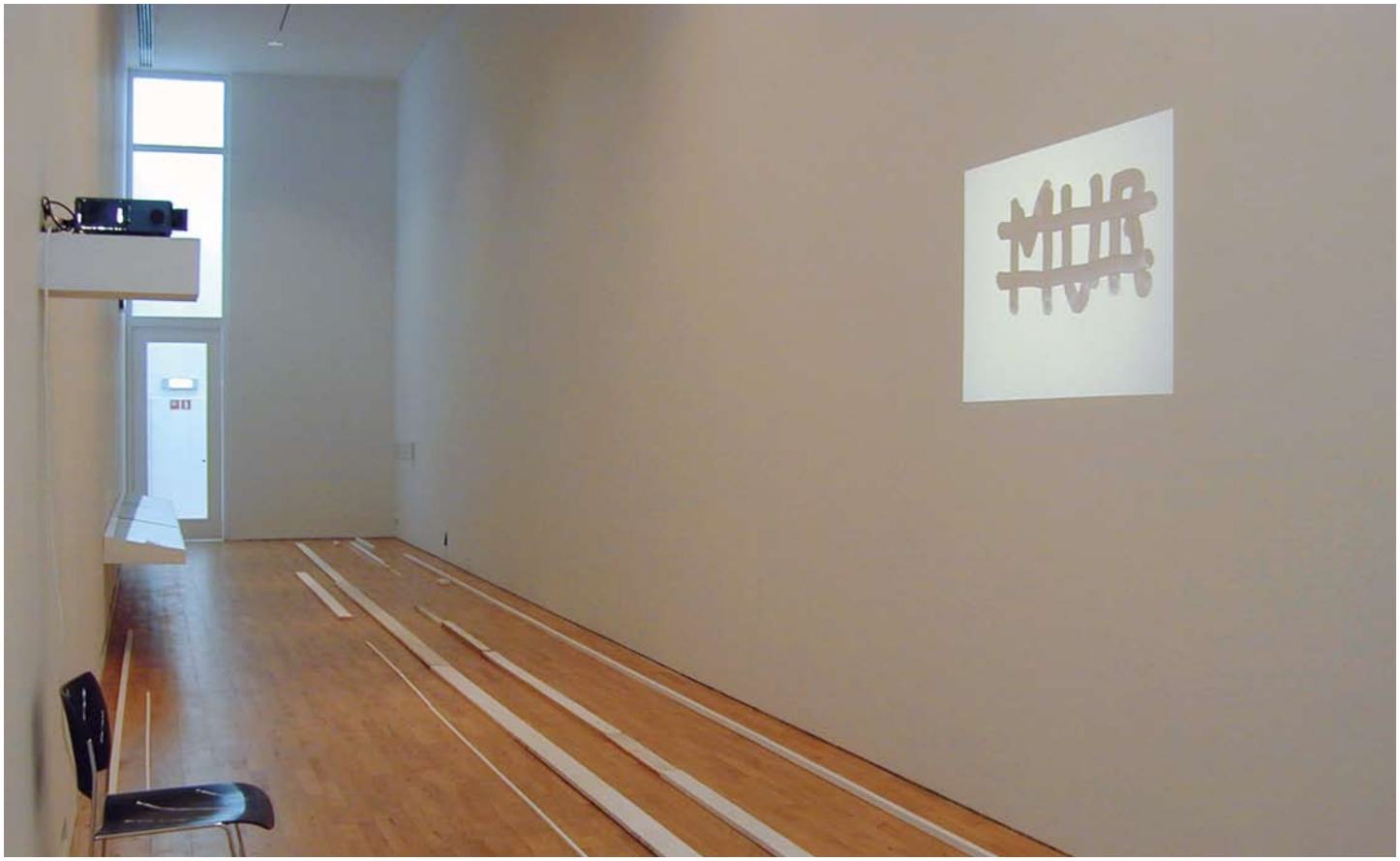
[2] Interviews with Marina Abramović by Frederika Huys and Dorine Mignot, 25 March and 16 April 2003, SBMK/ICN, Amsterdam.

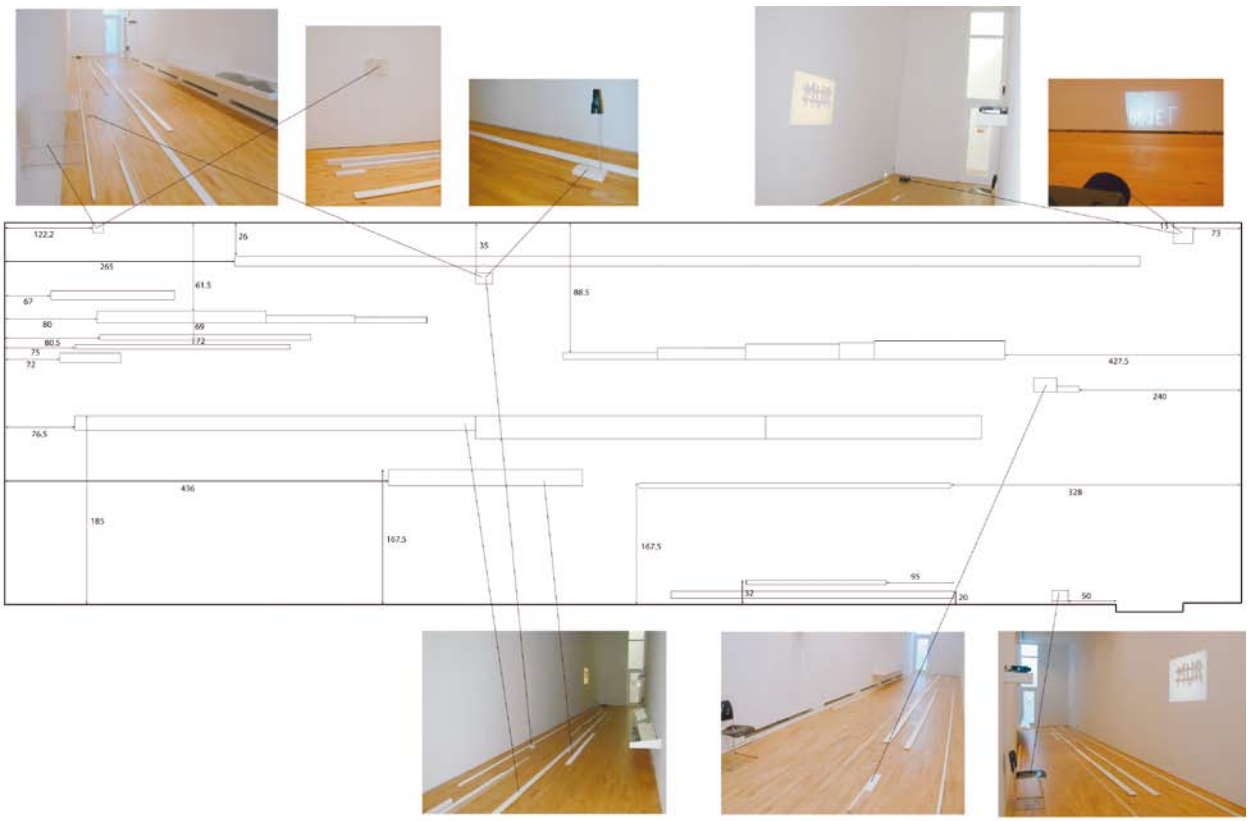
thought to be a fine idea, but it only becomes apparent later whether the artist still recognizes his work in this re-execution or interpretation by someone else. Some artists are unhappy about the re-installation carried out by others and change their minds about the work being variable.
In the case of the work *un ensemble autour de ~~MUR~~* by the artist Joëlle Tuerlinckx, seven different set-up sessions were recorded to provide references for the future ❺❻. Joëlle Tuerlinckx works with the aspect of time in relation to various materials, colours and shapes. Objects can change; they transform, discolour, and degrade. These processes of change in her work can be fixed or boosted. The artist interprets the context and translates this in her work. The interpretation of the context leads to the choice of combinations of certain elements from her installation. It is the artist's wish that her work be set up in various ways. In response to this request, the museum has investigated what this 'variability' means in the case of Joëlle Tuerlinckx. During the summer of 2005 a museum gallery was put at our disposal to carry out various experiments for this variable installation. The artist's assistant worked for a year on the various installations and the documentation of the work on commission to the S.M.A.K..[3] In her file she links the installation to the artist's oeuvre so as to create a framework for variation and interpretation. The assistant used the documentation herself and set up the work several times in the artist's absence. After each 'new' installation the artist was invited to give comments or suggestions. In most cases she was not in complete agreement and introduced changes. Our conclusion was that concerning the variability of the installation, interpretations could be made based on the examples given by the artist. In the present situation, it is up to the museum and the artist to decide whether the cooperation in connection with this installation should continue. A work of art may continue to evolve or in the end reach a definitive form.

[3] Maryline Terrier was assistant to the artist Joëlle Tuerlinckx between 2005 and 2007. She received a Master in Visual Arts in Valenciennes/ France in 2001. Between 2002 and 2006 she studied conservation at the National Academy for Arts and Crafts 'La Cambre' in Brussels/ Belgium.

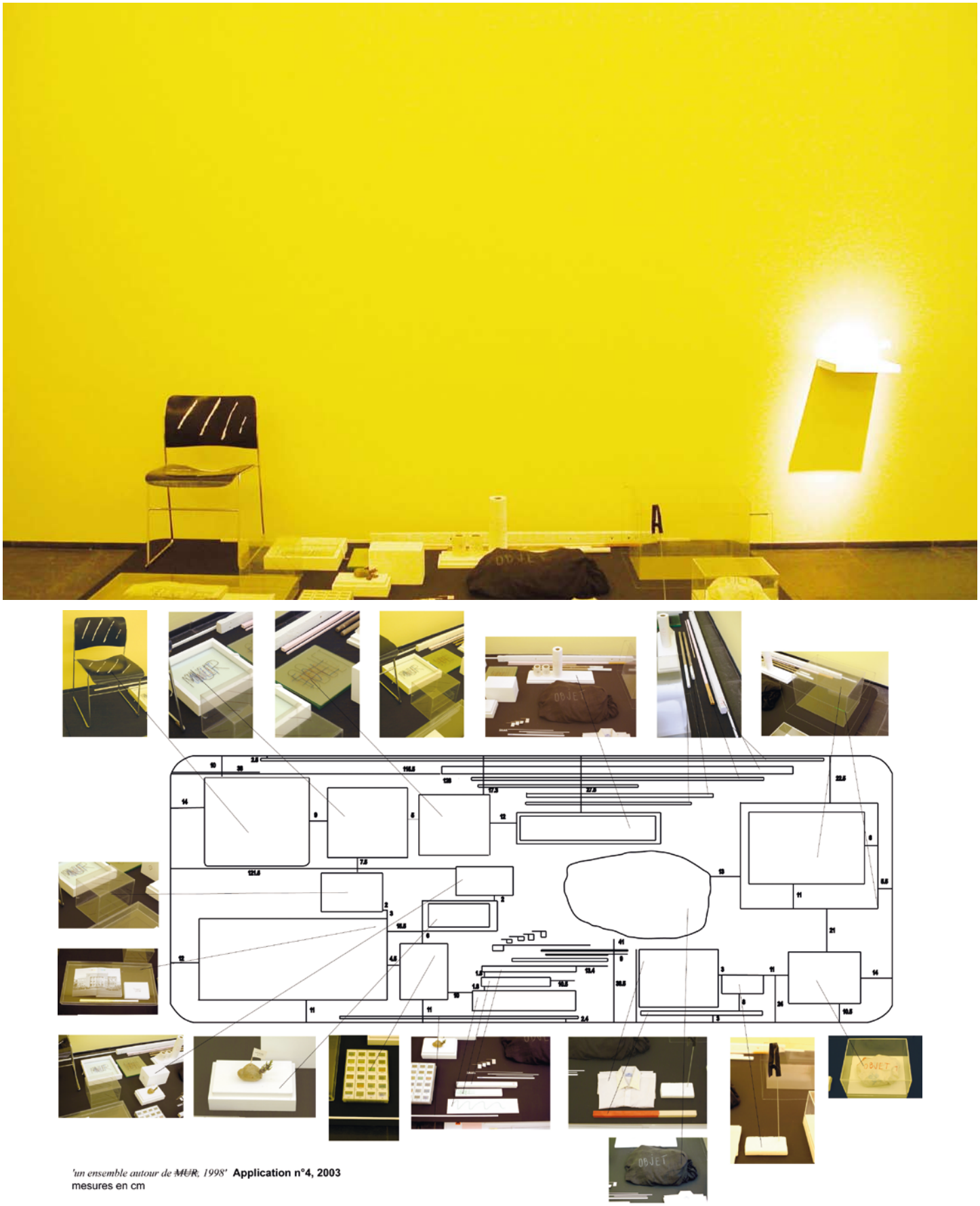
Conclusion

By discussing several methods, it is demonstrated that interactive cooperation with artists provides innovative solutions for the preservation and representation of complex works. Some artists know very well what is possible for their work and draw up guidelines themselves. In other cases the solution comes about as a result of dialogue or a cooperative arrangement with the museum. For example, the card game for carrying out the performance by the artist Suchan Kinoshita came into being by means of a creative dialogue between the artist and the museum conservation department. It was not an obvious solution, but was nevertheless created in a short time.
The form of certain installations is variable and then the way the work is set up is adapted to a particular space. This sort of work has to be set up several times in order to be able to describe them. Here too, artists often find themselves in unknown territory and can only arrive at solutions step by step. This gives rise to a long-term cooperative arrangement whereby the artist himself usually wishes to remain involved in the continued existence of the work. Not all artists want to be involved in the preservation of their work. Some prefer simply to hand over the necessary information when the work is purchased. An interview with the artist is then the most effective way of gathering information.





❺ Joëlle Tuerlinckx, *Un ensemble autour de ~~MUR~~*. PHOTO COPYRIGHT S.M.A.K. 2002; (BELOW) application of scenario n° 3. PHOTO COPYRIGHT S.M.A.K.



❻ Joëlle Tuerlinckx, *Un ensemble autour de ~~MUR~~*; PHOTO COPYRIGHT S.M.A.K. 2003; [BELOW] application of scenario n° 4. PHOTO COPYRIGHT S.M.A.K.

An artwork is usually underpinned by a combination of several forms of documentation and communication. Study will show which forms are relevant to the work and who will provide them.

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Shaping the Legacy of Krzysztof M. Bednarski: A Model for Artist / Conservator / Curator Collaboration

Iwona Szmelter

Abstract
Based on the experience of working with Krzysztof M. Bednarski's visual art legacy, this chapter proposes a guide for conservators and curators in acquiring and managing contemporary installations. The proposed model is designed for conservators and curators who develop long-term relationships with artists in documenting both tangible and intangible aspects of their work.

Introduction

This chapter presents the knowledge gained from a long-term collaboration between an artist, a conservator and a curator who worked closely to document and conserve the artist's legacy. It addresses the work of Krzysztof M. Bednarski since the 1970s, and many case studies of conservation-curatorial cooperation in which the artist was involved. The care for many years had a pioneering nature because it was against procedures which at time were binding in classical disciplines of art. It proposes a model for professionals working with modern art museums, where the conservation needs of complex installations have often been disregarded.

Documenting the legacy of Krzysztof M. Bednarski

Krzysztof M. Bednarski (KMB) is a sculptor, installation artist and performer, born in Cracow (1953). He studied at the Faculty of Sculpture, Academy of Fine Arts in Warsaw (1973-1979) and cooperated with the famous avant-garde *Laboratory Theatre of Jerzy Grotowski* (1976-1981). Now Bednarski divides his time between his work in Poland and Italy. He is constantly searching, responding primarily to his instinct and intuition.
For many years he has cooperated with art historian Maryla Sitkowska, who plays the role of his chronicler, author of articles and curator; and me, the author of this chapter as an advocate-conservator. By the term 'advocate-conservator', I mean the role played within the discussion about policies regarding understanding the artwork as a part of the cultural heritage, as well as handling, disposition, acquisition and conservation treatment of the work. The role of the conservator-advocate can be very important in the pre-acquisition process with artists and in unique situations for clients, galleries or museums interested in expertise. The research set the stage for discussions on the profession because in the 1970's the care of such artworks was without precedence in classical conservation and curatorial practice: 'Are we

advocates? Are we neutral professionals and experts? (...) an orchestrator of specialists?[1] The artist approached this long-term interaction in a collegial manner. Along the way he worked with many other specialists. We continue to promote knowledge about KMB's legacy, acting as consultants in pre-acquisition, acquisition, and re-installation of his work. Our goal is to share knowledge about his unique body of work.

Total Portrait of Karl Marx

Bednarski's series of artworks are frequently presented in different iconographic versions, assembly, and materials (e.g., marble, gypsum, polyester, with audio and lighting). Starting from the oldest series titled *Total Portrait of Karl Marx*, which was first presented in 1978, the continuation of the series was controversial because of censorship behind the Iron Curtain (the philosopher Karl Marx was treated as a great authority by communist regimes) ❶ ❷. During several exhibitions, KMB changed his installations. It would be a great mistake not to understand this as part of his creative process. Sequential iterations were not always converted from old ones, but were frequently created entirely anew with the artist's new interpretations that adapted their historical context to new realities utilising irony and erudition. In Bednarski's concept there is an attempt to transgress stereotypical notions. The artist states his intentions as follows: 'demonstrating the contradictions immanent in the traditional portrait of Karl Marx; snatching that portrait out of the context in which it usually appears and in which it has lost its potential of aesthetical influence; shifting the focus from formal values to cognitive ones'.[2] The installations were based on polyester casts of the portrait of Marx, assembled in groups (in great scale) with different metaphors. Since 2002 KMB has made new coloured casts of Karl Marx's head sculptures, usually with certain added attributes, for example, *Marx-International Klein Blue (with a snake)*, *Roses for Marx*. In November 2008, Bednarski presented an assemblage *Marx on a Wheelbarrow (with lamp and symbolic bottles of vodka)*, a piece full of biting sarcasm.

Moby Dick

The other cycle of KMB installations is titled *Moby Dick* ❸ ❹. Realized at the same time in several exhibitions from 1987 to 2009, it is based on a real ship's hull. The series is very memorable for viewers, conservators, and curators because of the monumental size of the art and of the fact that it was repeatedly installed in various spaces in many different galleries. In 1992, *Moby Dick* was bought by the Museum of Art in Łódź and became part of its permanent exhibition until it was de-installed in 1996. Meanwhile, in 1994, the Łódź Museum published a monograph titled *Moby Dick*. The piece was re-installed in Budapest, 1997, for a retrospective exhibition of Polish art. In 1999, it was re-installed again at the Centre for Contemporary Art in Warsaw. In 2000, Harald Szemann presented it at the Centenary Jubilee of the Zachęta Gallery in Warsaw when this vast artwork was presented for the first time just over the heads of viewers hanging from a ceiling, above the monumental hall. For this exhibition the artist instructed the conservators to ignore the original

[1] For more about the role of conservators as advocates, mediator and / or source of expertise see research report, De La Torre, M. 2002, *Assessing the Values of Cultural Heritage*, www.getty.edu/conservation/publications/pdf_publications/assessing.pdf (accessed 10 May 2010); also for more about the complex role of conservators and preservation of contemporary art see Szmelter (2010).

[2] See also: Sitkowska, M. 2009. *Documentation: Total Portrait of Karl Marx, 1977-2009,* Bytom: The Upper Silesian Museum, p. 81.

form of the work and reduce the size of the ship in order to reflect the original idea in a smaller space. Since 1989, Bednarski exhibited a parallel to the main series *Masks* - smaller versions of *Moby Dick*; one piece cast in bronze, another made of Carrara marble, etc. In 1990, Bednarski made it in felt for *Rauma Baltica* in Finland, dedicated to Joseph Beuys. In 2008-2009, the first, oldest version of the artwork titled *Moby Dick* was installed in MS-2, the new building of the Museum of Art in Łódź.

To gain insight into the artist's contemporary legacy was pioneering; an independent artist-curatorial cooperation over more than twenty years which has proved successful. The conservator is an advocate and biographer of the artist, the creator of a database and documentation. Moreover, s/he is responsible for conducting professional interviews and translating the meaning and idea of an artwork, the intention of the artist and his/her relation to the meaning of material, authenticity and the principle of conservation – 'do no harm'. The curator should be able to understand the whole context of the artist and must find a formula for the meaning of the work (installation) consistent with the intention of the artist and appropriate for a work of art, while understandable for the public. It led to two monographs on KMB and many catalogues related to the series of installations *Total Portrait of Karl Marx* and *Moby Dick*.

Preserving context and the 'extended concept of art'

The artist radically adapted *Total Portrait of Karl Marx* and *Moby Dick* for various installations. For example, he exhibited them in total darkness, and added elements that enhance sensory perception. In order to understand these changes, they must be seen in the context of both the artist's personal life and the political context of censorship. He worked in a time of political transformation that gave birth to a new geopolitical situation, new social norms and new fashions. This geo-historical context plays a fundamental role in KMB's legacy. As Achille Bonito Oliva, art critic and curator of Bednarski's many exhibitions, points out, 'Art means a production of symbolic forms; therefore it deals with the double-sided side aspects of *significant* and of the *meaning*. Due to a sort of dichotomy, also in geographical sense, it seemed that the western avant-garde took care of the significant while the eastern committed art of the meaning' (italics are Bonito Oliva's emphasis).[3] This difference in focus between the significant and the meaning plays out differently in symbolic forms employed by artists in classical Mediterranean Europe and in Central-Eastern Europe. As a consequence of political oppression in the twentieth century, art in Central-Eastern Europe often communicated forbidden messages through hidden meanings.

The perception of a variable artwork depends on the atmosphere in which it is presented. The objects may be hanging or standing, and the size and quality of the space may vary. All this influences the gestalt of an installation. The viewer is in dialogue with the art. It is a type of 'human conversation' in which the more one understands and knows, the richer the perception. KMB's works tend to be metaphorical, and they exhibit different characteristics of completeness and relevance according to the artist's changes in the installations. These human relationships and change over time are analogous to the

[3] From Oliva, A.B. 2009. *The Head Cutter: Total Portrait of Karl Marx, 1977-2009*, Bytom: The Upper Silesian Museum, p. 35.

❶ *Total Portrait of Karl Marx*, originally exhibited in Warsaw's Academy of Fine Arts, 1978. Here is the author's replica in the Upper Silesian Museum, Bytom, 2009. PHOTO Krzysztof M. Bednarski. ❷ [LEFT]. *Karl Marx Column in horizon*, 1978, re-installation in 1991, [RIGHT] *Karl Marks for sale*, art mound in the vitrine of Fendissime, Rome, 1991. PHOTOS Krzysztof M. Bednarski.

❸ *Moby Dick* in two arrangements of installation, with sound. [see ❹ for the other arrangement] Third re-installation, Centro di Sarro, Rome, 1988. PHOTO Krzysztof M. Bednarski.

'extended concept of art' proclaimed by Joseph Beuys, the master of the idea of social sculpture.[4] The documentation and preservation of these 'extended' artworks required deep understanding on the part of the curator and conservator. The conservator and curator were engaged in a collaboration with the art and the artist in order to answer questions related to KMB's legacy. This process had implications for the acquisition, installation and preservation processes for different elements of the works. The more we learned, the richer the relationship became between the collaborators and the art. From my point of view as the conservator, the practice of re-installation yielded complex information not only about the material structure, but also about the integrity of intellectual values imbued by the artist. Bednarski's art seems to be structured by 'play' – we detailed this and other intellectual values for KMB's installation *Grass only Grass* in the *Inside Installations* project.[5]
Bridging practice and theory as an independent conservator and curator at times led to confrontations with museum staff. In trying to implement the conceptual artistic intentions of the artist, it was always important to carefully communicate why he made the decisions he did. We always documented the process of decision-making to help preserve his complex concerns.
The classical notion of a work of art is not sufficient in the face of Bednarksi's and many others artistic legacy.[6] Individual works of modern art require separate means of dealing with them suited to their specific nature. This is especially true for works which cross the limits of the traditional frameworks of the artistic disciplines – from sculpture and painting to environments, assemblages, kinetic objects, installations, elements of performance art, electronic multimedia, video art and many others.
The role of tangible heritage and intangible elements, meaning and context has a significant role for reception of artworks in the future. Especially the idea of total art, Gesamtkunstwerk, which is symbolic and very old, now is reliving in the context of the complexity of artworks of contemporary art. It reflects a role of a total art, for which an artist claimed a creative, participatory role in shaping different forms of artwork, society and politics. The extended concept of art extends the analysis of the theoretical foundation and the ethical and aesthetic principles of conservation of contemporary art. The care of contemporary art shows the limits and possibilities of development of the established principles and creates new challenges.[7]

The need for a new paradigm of conservation theory and practice

The thoughts presented above about atypical legacies in contemporary art, with specific reference to artworks of Krzysztof Bednarski, are a reflection of current problems and bifurcations between classical theory and doctrines of conservation and practice in relation to contemporary installations. In KMB's case, it is particularly true when combining the roles of material and ideas, and incorporating a spectrum of values including authenticity and reversibility. Philosophically, this process is related to Hans Gadamer's hermeneutic circle of interpretation in art.[8] As Gadamer explains, this interpretation is an iterative process through which a new understanding of reality is developed by means of exploring the details of existence, codes, signs and dialogue. In our roles as conservator and curator, we interpreted and documented a series

4 Joseph Beuy's 'extended concept of art' is his statement dated 1973, quoted often together with the term 'social sculpture'; published in English in Tisdall, C. 1974. *Art into Society, Society into Art*, London: Academia, p. 48.

5 See the case study results for Grass just Grass at www.inside-installations.org/artworks/artwork.php?r_id=275 (accessed 18 August 2010)

6 'Latest artist legacy' – I understand this term as recently created cultural heritage which stay a legacy; both that created in the framework of the classical artistic disciplines such as painting, sculpture and also their derivative forms such as contemporary painting in new techniques as well as the huge spectrum of new forms of visual art.

7 See also: Szmelter, I.2010; 'Rethinking A New Complex Science and Care Of the Heritage of Visual Art' in *The International Institute for Advanced Studies in Systems Research and Cybernetics (IIAS), Art and Science*, vol.8, 2010, 65-71.

8 Hans Georg Gadamer explained the concept of the hermeneutic circle in his fundamental work *Wahrheit und Methode. Grundzüge einer philosophischen Hermeneutik*, 1960; Tübingen [Polish translation Baran, B 2007, *Prawda i Metoda*, Warsaw: PWN].

of instantiations of a single installation to combine tangible and intangible elements that communicated new symbolic forms for the viewer. Deciphering the code and maintaining dialogue needs to be carried out by professionals who are sensitive to the intangible elements attributed by the artist. KMB's artworks have the capacity to expand contexts and appeal to the viewer's erudition, their ability to reflect, their knowledge of history, their sense of the tragic and drama, as well as their sense of humour. Historical context, mockery of reality and customs, and reference to attitudes of literary characters all make up the artist's 'code'. Although readily understood by contemporary viewers, this code should nevertheless be clearly described and included in the documentation and the archive. Such extensive documentation will permit future actors to recreate the specific 'play', and will be useful in subsequent re-installations and in re-activating dialogue with the viewer as 'perceptor'.[9] From my long-term freelance experience, including confrontations with several traditional museums over the display of contemporary art as an independent expert, I conclude that the role of the conservator is to be an advocate of the artist and the artwork. This of course is true whether the conservator is independent or a member of a museum's staff. In the following paragraph, I present a model entitled 'Structure for the Care of Modern and Contemporary Art' (SCMCA). This model has an open character that is useful for reconsidering the role of conservation-curatorial management. The proposed SCMCA model is based on practice, and sharing knowledge and theory developed in two academic centres: the Faculty of Conservation-Restoration in AFA Warsaw and Museums Studies Program at the University of Warsaw. Over time there were many useful discussions between actors in the process of preserving culture heritage, including artists, curators, conservators, journalists, lawyers and viewers – all interested in refining good practice.

[9] Here the 'perceptor' is a viewer, but a certain kind of viewer, defined in a particular way; in phenomenology, a perceptor is a person who is perpetually seeking knowledge about his/her perception of an artwork. Roman Ingarden and Maurice Merleau-Ponty focused on the phenomenology of perception, which has been adopted by art theory. Perception is an event where both subject and object are the result of the 'concretisation' of an artwork in the mind of a viewer. See also: Merleau-Ponty, M. 1962. *The Phenomenology of Perception*, London: Routledge & Kegan Paul Ltd.; Ingarden, R. 1966. *Studies in Aesthetics*, Warsaw: PWN, vol. 2, p. 157; passim.

The SCMCA – preliminary recommendations for a structure for the care of modern and contemporary art

The implementation of this structure should meet a number of basic requirements and facilitate the performance of management tasks (in different type of institutions) including:

— defining a mission containing the policy context, the objectives, the state of the art and indications of broad research priorities that combine a humanistic and scientific approach
— defining a method of recognition of the artwork – a common strategic research agenda with agreed-upon research priorities and instruments
— defining and implementing a preservation strategy
— ensuring maximum synergies among related activities in conservation-curatorial care, and the artist's participation

The following notes provide an overview of details involved in implementing the SCMCA model. Each step involves the conservator and curator in collaboration with the artist.

A fundamental tenet is that the research/project should have an open character. It has to be elastic enough for its principles to be adapted to even the most individualistic work of art. Respecting the values embedded in heritage

❹ *Moby Dick* in two arrangements of installation, with sound. [see ❸ for the other arrangement] Tenth re-installation, in Muzem Sztuki, Łódź, 2009. PHOTO Krzysztof M. Bednarski. ❺ *Victory, Victory*, 13 XII 1981, marble, shadow [projection], 1983, double version presented at the Centre of Contemporary Art in Warsaw; light is an integral part of the installation. The context is interpreted by viewers in different ways – as universal irony, or local – as strictly political comment, especially to the contemporary meaning of 'Solidarity', and the historical date of the introduction of martial law in Poland. PHOTO Krzysztof M. Bednarski.

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to indicate the aims of conservation and restoration requires establishing an equilibrium between tangible and intangible factors in the care of modern works of visual art. The project may be based on a framework which would encompass the assessment of the values of a work, its underlying idea, historical and social context, the artist's message documented through conducting an interview with the artist and those surrounding him, and also taking into account the material existence of the work (understood as the possibilities of retaining the original elements of the work, perhaps with the replacement of 'ready-made' elements) as well as its non-material heritage. The starting point is analysis and documentation. The aim of the analysis of a work of visual art is its holistic investigation and the construction of an archive as the basis of knowledge of the object (for later guidelines for future care). This documentation should comprise:

ACQUISITION PROCEDURES: Procedures for acquisition of the work conducted in conservation-curatorial collaboration with the artist, sometimes including a pre-acquisition interview in the artist's studio.

DOCUMENTATION: Photographic documentation and physical measurement as determined by the artwork (traditional and digital photography, three-dimensional documentation). This may be extended by other forms of recording, including moving images, audio, movement analysis, sensory perceptions, etc.). Investigative documentation: Interview concerning the artwork in the form of a digital audio recording or written communication, followed by transcription and additional processing of the interview.

REPORT: Creation of a report containing the following basic data: the artist's definition of the embodied idea, the significance and composition of the materials, technology, apparatus used, preservation of authenticity of the elements of the work (possibility of replacement of elements and supporting structures – so-called inserts, and other 'ready-made' objects used), the attitude of the artist to conservation of the work, and guidelines for the reconstruction or re-installation of the work. The documentation will include all accumulated documents of the artwork, including authorized interviews, collections of texts by the artist, artistic manifestos and catalogues, etc.

ARCHIVES: Archives should be constructed that concern the social and historical context of the work, including the idea it embodies on the basis of literature and the historical context, press reviews, television, films and contemporary documents. The archive may include material samples, data concerning their significance and analysis of the role played by the materials used in the creation of the work. The archive should also contain documentation of materials on the market at the time of the creation of the work and a collection of samples of materials from the artist's workshop. The archive may contain laboratory identification of materials, with results of micro-chemical and instrumental analysis.

PROJECT DESIGN DOCUMENTS: Recommendations for exercising conservation-curatorial care (on the basis of guidelines provided by the creator of the work). Concepts of conservation: These concepts address how to preserve and/or restore the original expression and emanation of the idea embodied in the object, including the aim of conservation-restoration and the permissibility of the replacement of elements. The concepts also address realisation – passive care, preventive conservation/or active conservation/restoration or reconstruction (authorization of replicas, emulation, etc.).

EXHIBITION DESIGN: The role of exhibition design is an element in preserving the integrity of the work – the important role of the space itself.

LEGAL ISSUES: The legal aspects of artists' guidelines concern the principles and methods of re-installation of the object, or conservation by documentation and digital registration of ephemeral elements.

LOANS: The need to respect the guidelines for conservation-curatorial care while on loan; creation of documentation and guidelines concerning transport and handling.
It must be remembered that the above guidelines have an open character. Each element is subject to change, based on the needs of the individual artwork.

Conclusion

In displaying a work of modern art, the curator and conservator need guidelines that address the artist's intent, the materials and context, and the integrity of the artwork. These guidelines can be developed through long-term collaboration of the artist with conservators and curators outside of institutional affiliations who act as advocates and often play the role of the orchestrator of different activities. They can provide answers to crucial questions to museum staff regarding artistic identity, intent and ideas, authenticity, permanence/impermanence, conservation, reproducibility and lifespan of the artworks. In the dissemination of knowledge, it is also important to cooperate with institutions such as galleries and museums specializing in the care of different fields of modern art, including video, film, audio and other time-based media. Experience with the care of modern and contemporary art led to the development of guidelines and a model for conservation-curatorial structure devoted to museums and galleries. The considerations and an attempt to define the structure of care presented in this chapter in context of cultural heritage. The model may influence practice within institutions that collect modern and contemporary art to realize their mission of collections preservation by incorporating an understanding of associated artist values.

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Thanks go to the cooperation of Maryla Sitkowska, art historian, who plays the role of Krzysztof M. Bednarski chronicler. She preserves the knowledge of his legacy with care.

Updating Knowledge in Conservation Criteria. *Circle Puppets* Case Study

Arianne Vanrell Vellosillo

Abstract

Circle Puppets by the American artist Dennis Oppenheim is a complex installation that combines elements of technology with contemporary and traditional sculpture to elaborate and transmit the message of the artist. In 2004, the installation *Circle Puppets* was selected by the Museo Nacional Centro de Arte Reina Sofía (MNCARS)[1], as a case study in the *Inside Installations* project.[2] The aim was to develop and evaluate a series of procedures that would improve its comprehensibility to the public and solve imminent problems of conservation, restoration and exhibition of its components. This chapter explains how, thanks to joint efforts of a collaborative network of professionals and departments within the museum, documentation was created that will allow future re-installation without the presence of the artist. Through the application of research procedures and methodological processes proposed by the Inside Installation project, the documentation will help achieve the physical and conceptual conservation of the work and improve the comprehension of the artist's idea for professionals and the general public.

Introduction

The collection of art installations in the MNCARS has increased considerably in recent years. Over the last decades we needed to optimize and structure the documentation available to adapt our procedures to specific requirements of each artwork and to enrich our documentation in order to improve its comprehensibility and guarantee correct exhibition and message transmission for future installations without future participation of the artist.

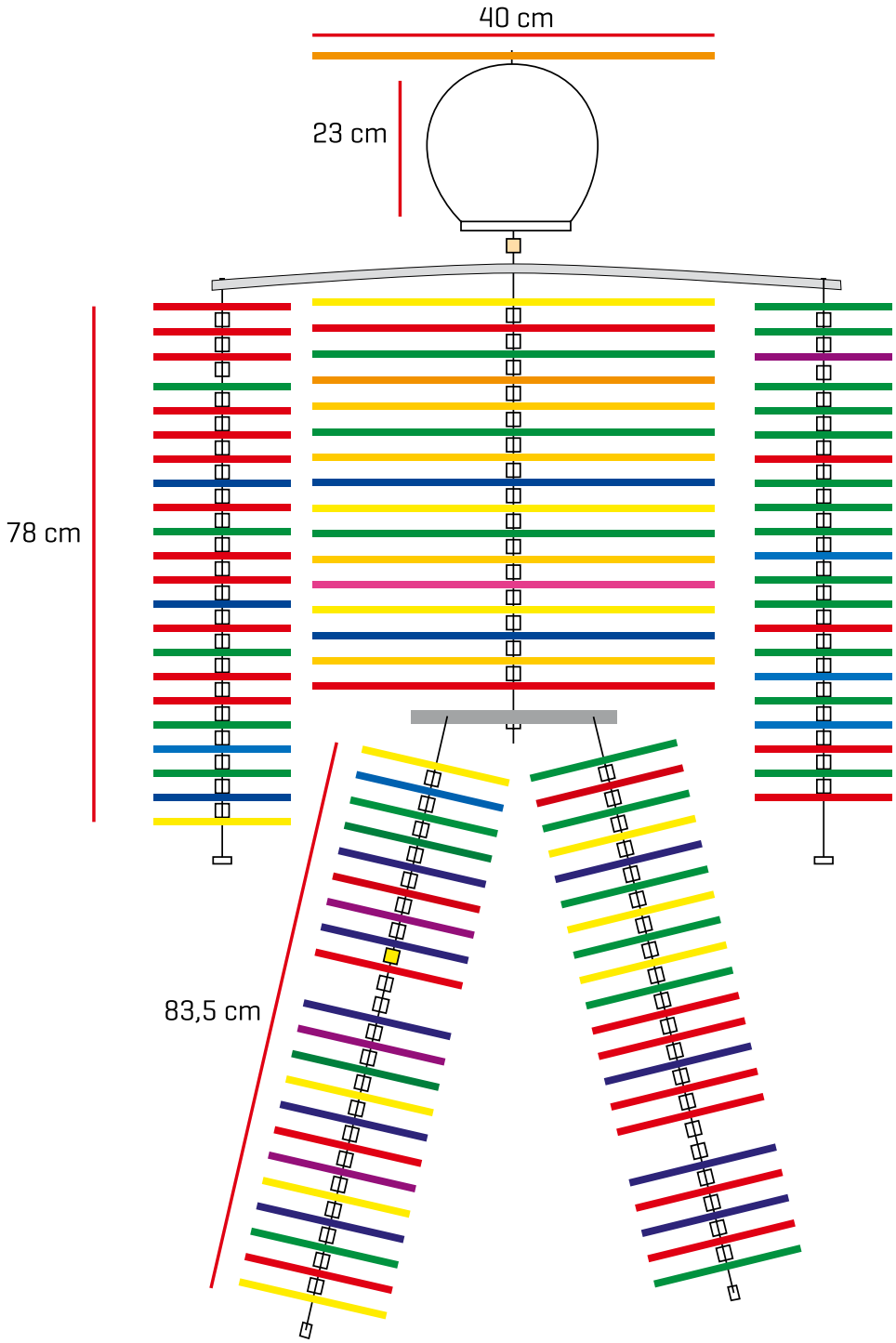
This made us check all of our working tools. For example, we improved our use of the museum database and access to information obtained by different departments involved: Registrar Office, Collections, Temporary Exhibitions, Education, Restoration, Security, Maintenance, and so on. It also allowed us to develop methods of participation in research that extended our knowledge through experience shared with professionals and museums from elsewhere.

The *Circle Puppets* installation is part of a series of significant works by this American artist that he considers to be his most important work within a European museum. It consists of four installations and three series of photographs of land art that were donated by the artist to MNCARS in 1998.

Once the installation arrived at the museum, we were conscious of the lack of knowledge, documentation, and installation guidelines that would make its assembly and exhibition impossible without the presence of the artist. So, when we received a loan request in 2003 from the Centro de Cultura Sa

[1] The Spanish group of the *Inside Installations* project was co-organized by the Conservation and Restoration Department of the MNCARS. The Spanish group included the Museo de Arte Contemporáneo de Barcelona (MACBA) in Barcelona; the Fundació La Caixa, in Barcelona; the Museo Valenciano de Arte Moderno (IVAM), in Valencia, the Centro Andaluz de Arte Contemporáneo (CAAC), in Seville; the Guggenheim of Bilbao, in Bilbao, and the Department of Conservation of the Diputación Foral de Alava and the Museo Artium in Vitoria.

[2] Members of the MNCARS team included Jorge García Gómez-Tejedor, Arianne Vanrell Vellosillo, Mayte Ortega, Craig Gordon and Mikel Rotaeche.



Puppet nº 2
Circle Puppets
Dennis Oppenheim

❶ Schema of elements that form the marionettes at *Circles Puppets*. ILLUSTRATION Mikel Rotaeche, conservator, Department of Conservation at the MNCARS.

Nostra [Cultural Centre Sa Nostra][3] in Palma de Mallorca that was organizing a solo exhibition on Dennis Oppenheim[4], in which the artist would participate in the installation process of all artworks, we made the most of the opportunity of working with him to upgrade and activate a process of documentation that allowed us to better understand the installation needs of the work. As a part of preventive conservation practices, new packaging was also designed and fabricated, since the original packing designed by the artist – poorly made cardboard boxes – offered no conservation or safety guarantees.
When we chose *Circle Puppets* as a case study, we did not have much information about all the Oppenheim works that we had in our collection, so we decided to install the four installations, three series of photographs and one video in a thematic exhibition that would explore all the challenges and take advantage of the artist's presence. This would allow us to evaluate the *Inside Installations* model through each of the four installations.
Dennis Oppenheim was born in 1938 in Electric City, Washington, US.[5] He currently lives and works in New York City. *Circle Puppets* was conceived in 1994. It reveals relevant aspects of personal research and production of the artist, using video and performance. Proposing experiences at the edge of personal risk, he develops ideas on energy transformation and communication from very different artworks that he created from the end of the 1960s. The puppets used in *Circle Puppets* remind us the marionettes and other elements he created from the 1970s to form complex constructions that the artist called 'machine pieces'. For these works, he separated the concept from the object of sculpture by working with random, erratic and enigmatic functioning systems and elaborating interesting metaphors.
His interest in expressing the rational conscience and the development of possibilities of the mind was revealed in those installations, where chaos and irrationality as elements of expression dominated. Further, he created sculptures based on concepts of 'transformation of everyday objects' and at the end of the 1990s his work reached the monumental scale, fusing sculpture and architecture in public and private spaces. The diversity of his work, the elements, materials and means used reflect an incessant search throughout his career.

A complex case study. Traditional sculpture confronted with technological advances

From a material point of view, *Circle Puppets* can be split into two parts. The first is formed by elements traditionally used in contemporary sculpture such as wood, metal, plastic, rubber pipes, and so on. In order to complete the installation, the audio-visual part consists originally of two TV monitors, two VHS tapes (each of which is forty-two-minutes long), two VHS players and the cables necessary to realize the connections. However, is important to know that TV monitors and video players are not included in the artwork and Oppenheim believes that the institution is responsible for providing the equipment for the correct functioning of *Circle Puppets*.
Circle Puppets consists of two marionettes ❶. The body of each marionette, arms and legs included, is now composed of polymethyl methacrylate discs of different colours and in three different types: transparent, opaque and

3 The Centre de Cultura Sa Nostra belongs to La Caja de Baleares, "SA NOSTRA" which is a savings institution based in the Balearic Islands, Palma de Mallorca, Spain.

4 The exhibition, titled *Dennis Oppenheim*, took place at the Centre de Cultura Sa Nostra in Palma de Mallorca from 2 October until 22 November 2003.

5 Source: www.dennis-oppenheim.com [accessed July 2010]

mirror surface. The head of each marionette is made of a white plastic globe 23 centimetres in diameter on which a polymethyl methacrylate disc is placed as a hat. The marionette pieces are united by steel ropes. Some parts of the puppets, like the shoulders and the hips, are made of metal pieces. The marionettes are accompanied by two big elements that form crossbars (stretchers) as guides that serve to direct the movement of the marionettes. These pieces are joined to the marionettes by means of thirteen rubber cables: nine black, two brown and two transparent ones of different length. The work is placed directly on the floor without using a pedestal. According to the express wish of the artist the marionettes lie down and the crossbars lean against the wall, with the cables joining both elements in a random way. Technological components are formed by two TV monitors and two VHS readers placed very close to the marionettes, so that they can be perceived as a unique work. The sound from both monitors that accompanies the images is 'moderately high', according to words of the artist, so that they disturb the public and make people pay attention to the moving images. The exact volume depends on the size of the exhibition room and the proximity of other works. One video presents a fight between two marionettes directed with cables by two people who go up two stairs. The marionettes collide, breaking some of their methacrylate circles, and fall down to the floor, with music and background stroboscopic lights. One can see the first plane of a piano keyboard from above in the second video, with the hands of Dennis Oppenheim playing a repetitive melody that accompanies the marionettes' fight in the first video. He wears a puppet on every finger. As intended by the artist, the images on both videos are poor quality. The monitors are placed next to each other, forming a small angle to the side of the marionettes.

The conservation challenges

In 2004, when we evaluated the possibility of developing a case study using one of our installations for *Inside Installations*, one of the arguments considered for choosing *Circle Puppets* was the need for improving the quality of documentation necessary for assembly of the pieces to be able to exhibit it without the future artist presence. A second argument was the complexity of elements he used to narrate his conceptual intentions.

During the deliberations, we were in frequent contact with other departments within the museum involved in the case study project, initially to evaluate the elements involved at the installation, their relationship and how it works inside the gallery room including its relationships with any other installation at the same space. One of the interesting aspects of the project was that to achieve the proposed targets there was necessary participation between several working teams with personnel from different departments within the museum. This undoubtedly nourished the project by providing different points of view and different ways of working. The combination of elements used in *Circle Puppets* challenged traditional criteria of object-centric conservation because of the necessity to update, through migration and replacement of exhibition systems required to keep audio-visual components functioning. The presence of the artist allowed us to better understand his working process and his attitude about conservation, exhibition and installation.

The video elements originally produced in VHS format created diverse problems for their exhibition and short-term conservation, because of the complex maintenance and replacement concerns of VHS reading and display devices. Therefore, it was important to define with the artist what was important for future exhibitions. In selecting new equipment, we took into account the number of anticipated exhibition hours – undoubtedly a factor in past degradation – while maintaining the conceptual and aesthetic qualities of the installation.

It was clear that the difficulties in understanding the work altered our responses and our conservation criteria. It was also a problem of communicating the meaning of the work to the museum public. The museum's Education Department developed an interactive virtual tour available through a computer in which viewers could write their feelings about each of the installations. This helped us assess the level of comprehension on the part of the public. It was interesting to learn that many visitors were aware of the *Inside Installations* research conducted by other institutions in European countries. This widespread communication throughout Europe resulted in better appreciation of behind-the-scenes conservation efforts.

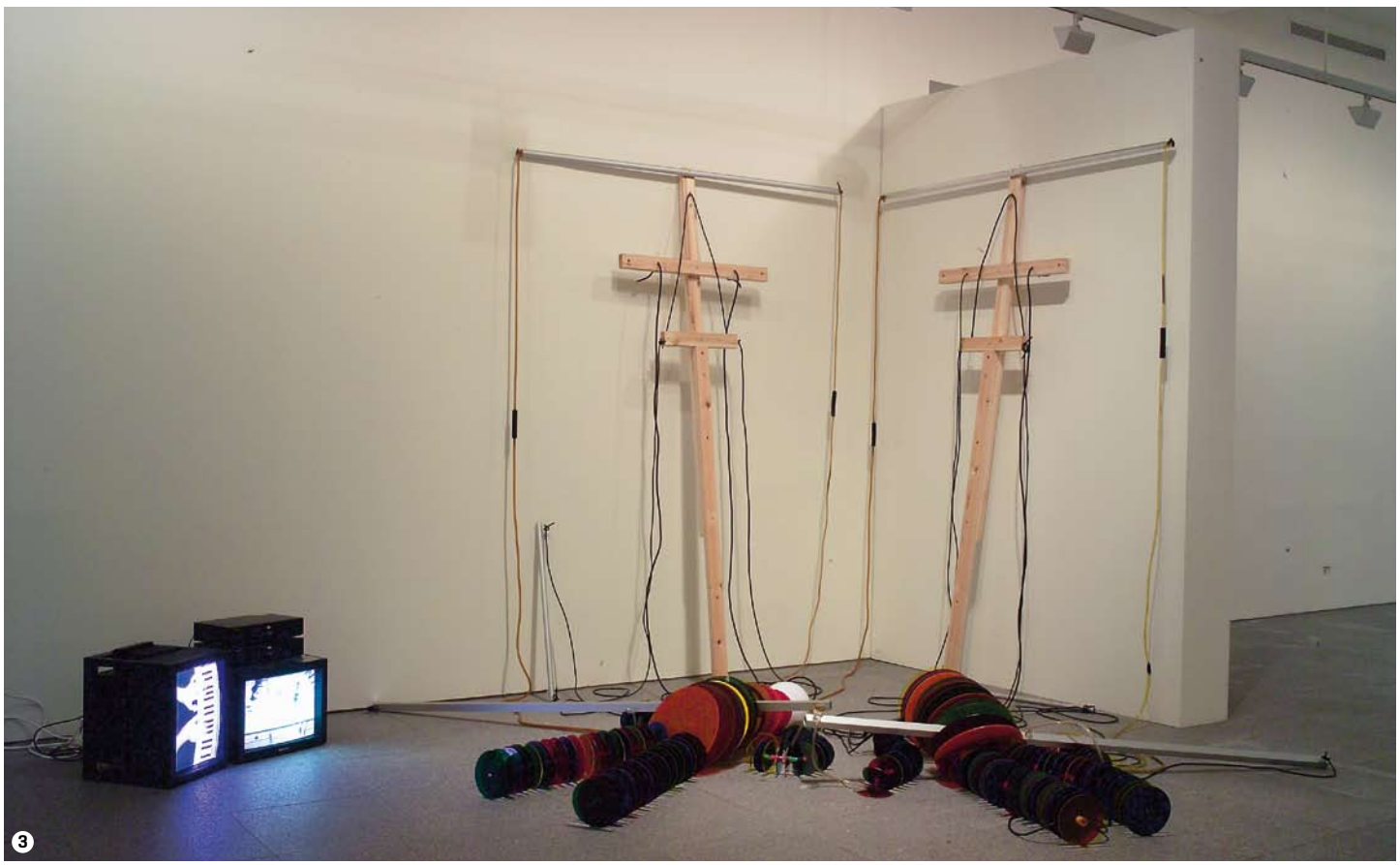
Exchanging information. The artist's participation

After the exhibition in Sa Nostra we contacted the artist for the first time through his assistant in his studio in New York to ask for his help with the case study and to fix the date when he could assist in the mounting of the artworks. Dennis Oppenheim was largely aware of the difficulties in properly exhibiting and conserving his works, but had never considered all the details needed to improve the documentation and much of the existing documentation that was not clear to us. When our documentation process started, it became clear that it was not only necessary for the conservation and understanding of *Circle Puppets* but for all works that we had from Dennis Oppenheim in the museum collection. After this realization, we decided to make a more complete exhibition and to take advantage of the artist's visit to collect needed information for the other works.[6]

Dennis Oppenheim was very receptive to all of our proposals, as well as to our request for being recorded and videotaped during his stay in our museum (five days of mounting). From this process we collected considerable information that reveals how the artist works and how he plans the exhibition of his artwork. When we began to gather the information we realized that we had only one image of the first installation of the piece before the exhibition in Palma de Mallorca, and there it was used as a guide to expose the artwork in Centro de Cultura Sa Nostra (Cultural Centre Sa Nostra), in 2003 ❷.

In 2003, after having completed the first examination of the general state of the work, in which we compared every element with previous photographs, we observed that several methacrylate discs and the knots and ties between them were missing. Some metal pipes were also lacking and the wooden strips were a little dirty and scratched. The ties of the steel rope were cracked and had losses and rips. One could also see ageing of some of the rubber pipe elements.

[6] The artworks that had been displayed in Madrid from 19 April 2005 until 22 November 2005 included four installations: *Black Dog in Cage* (1992), *Aging* (1974), *Black Pool* (1990) and *Circle Puppets* (1994); three groups of photographs: *New York Stock Exchange* (1968), *Directed Seeding-Cancelled Crop* (1969) and *Polarities* (1972); and a video: *S/T Program Two* (1970).



❷ Dennis Oppenheim during the assembly of the show at the MNCARS in 2005. Most of the decision-making process was based on photographs of previous exhibitions because Dennis Oppenheim did not remember all the details of the installation of each artwork. The image shows that the book was the only available photograph of *Circle Puppets* and had been used in 2003 for the preparation of the mounting before the exhibition *Dennis Oppenheim* at the Center of Culture of Sa Nostra in Mallorca. PHOTO Pepe Lorén, Department of Conservation photographer, MNCARS.

This problem was solved by buying new methacrylate plates, metal tubes and wooden strips. The methacrylate discs were replaced with different colours at random by the artist where they were missing. This replacement, was made almost 10 years after the creation of the work, was done with different colours who better matched his original 1994 selection. Some of the tones used in 1994 did not exist in the market in 2003 and Dennis Oppenheim used an opaque disk that had not been used on the original version to replace a missing one.

This process of random replacement depending on the availability of the materials in the stores is part of the 'natural' and random selection process that Dennis Oppenheim develops in his works, reaching solutions that do not depend only on the intention of the artist and are influenced by external variables that cannot be controlled.

We made a new artist statement for each installation, considering each element and its hierarchy or relative importance to transmit the idea of the work. We defined which elements could be replaced, and how, including imminent problems of obsoleteness of the electronic devices, such as TV monitors and VHS players. We also included information on the devices that show a specific technological moment and in which way these changes could alter visitor perception.

When we started discussing the images used as a reference for the *Circle Puppets* installation that had already been used for the installation of Sa Nostra in 2003, Dennis Oppenheim informed us that the first mounting of the piece had not been done by him but by a photographer who had to make photographs of the piece for the first time. He said that he had agreed with the result without having participated in the decision-making. Once again, chance had been at play in this first proposal. The lack of information meant that it had been documented as the 'official' installation made by the artist and served as an example in successive productions.

The *Circle Puppets* case study exhibit was opened on 19 April 2005 and continued until 22 November, 2005, to coincide with *Inside Installations* seminar held in Madrid and to take the opportunity to explain and exchange ideas with the whole project team. We also benefited from the presence of students during the public session of the Madrid Seminar to help disseminate information about the project ❸.

After the installation of all the artworks, the General Assistant Director[7] of the museum conducted a videotaped interview in the exhibition hall, with Dennis Oppenheim's works in the background. This interview included questions from all the departments involved in the assembly of the show, which also served as communication material for the Press and Education Departments.

Conservation interventions: New approaches to changing needs

The conservation and restoration interventions were carried out in two phases, depending on the installation components: the puppets, metal bars, wooden slats and rubber pipes were revised by the artist, preserving the changes made in the exhibition in 2003 and documenting it in sketches, photographs and drawings of each piece.

We replaced three methacrylate discs in the extremities of one of the puppets

[7] María García Yelo was general assistant director of conservation, research and dissemination of the Museo Nacional Centro de Arte Reina Sofía from June 2005 to January 2008.

❸ Dennis Oppenheim, *Circle Puppets*. During the exhibition of the *Inside Installations* project at the MNCARS in 2005. PHOTO Pepe Lorén, Department of Conservation photographer, MNCARS.

and put a new disc on the head of each, since after having observed the video of the fight between the two puppets we confirmed that both had discs as a hat and that at the time of the installation of the case study of the MNCARS they did not exist. We selected the colours red and green to resemble those in the video.

The TV monitors used on the exhibition in Palma de Mallorca were two combo models with video player incorporated, and at the exhibition in Madrid, the TV monitors (the new model is Sony Trinitron PVM 2130 QM) were purchased by the MNCARS expressly for the show. Dennis Oppenheim was asked about the possibility of replacements or repairs in the future and he told us that it was not important to conserve them as the original elements, and in fact, in all the exhibitions in which *Circle Puppets* had participated, the monitors and VHS players were elements installed separately, so the use of monitors with similar dimensions (except plasma display screens) was enough because they would be placed directly on the floor, at an angle of approximately 60 degrees for the viewer, so the image would not be appropriate if plasma display screens are used.

Regarding the visualization systems, exhibition copies and so forth, the difficulty arose regarding how to maintain, repair and conserve the VHS system. Therefore, DVD exhibition copies were made so that they could be used only during the exhibition of the work in the case study show. VHS videos supplied by the artist had a 'snow' effect from dropout, and a slight vibration in the image. By switching to DVDs, breaks were eliminated and the snow effect was partially attenuated by the express wish of the artist. However, we decided not to clean the image or improve its quality to keep the time reference of the images.

We replaced the VHS players with DVD players (the new DVD reader model is a Pioneer DV 344). Copies were made with automatic looping to make exhibition easier and to avoid manipulation by security guards (exposition hall assistants), who were responsible for turning on and off the electronic devices every day. The DVD players were chosen because their colour and shape were similar to the VHS players, avoiding a contrast between old and new elements that could alter the vision of the work. In fact, Dennis Oppenheim was not concerned about keeping any kind of temporary reference through the appearance of electronic equipment used in the installation. The actual appearance of the monitors, and DVD players was a neutral, anthracite gray, with box-like forms.

Documentation

When considering the future use of the documentation generated by the case study, we thought that it should be as accessible as possible. In this way, each department could approach the information directly, without intermediaries, in order to avoid confusion and wasting time.

The video interview is available at the *Inside Installations* website[8], and in the museum database and the material obtained during the five days of video and audio is recorded on DVD and kept as raw data, without editing. This, information may be used for future research on the artworks of Dennis Oppenheim or similar studies. Digital photographs were transferred to the museum

[8] Source: www.inside-installations.org (accessed July 2010)

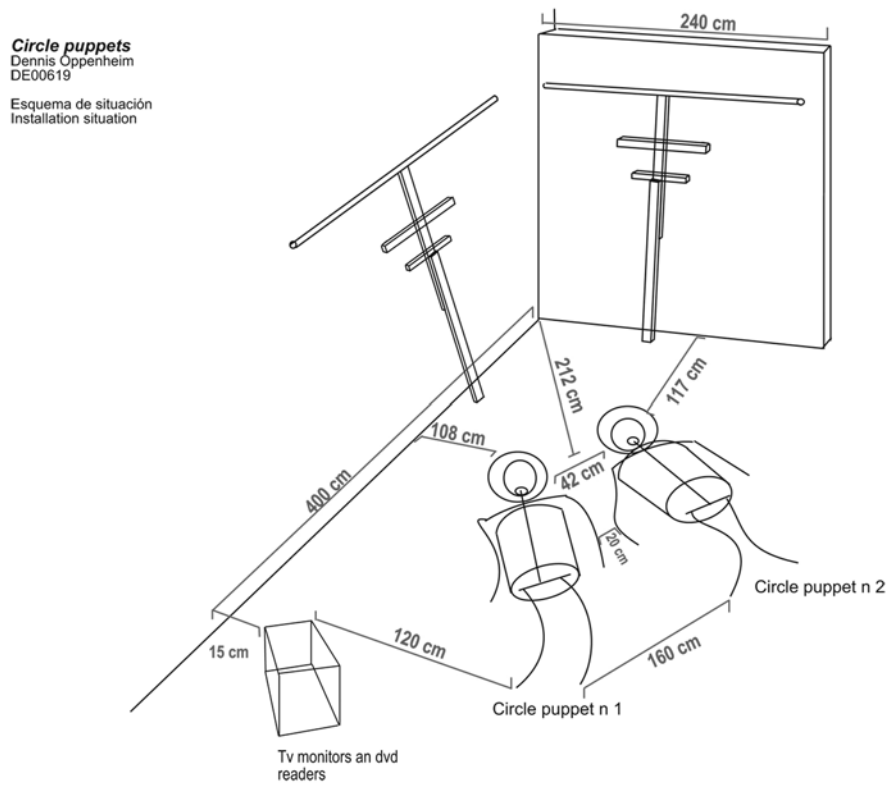
[9] Interview with the artist at the MNCARS on April 2005.

database, which is accessible to all departments, keeping high-quality photographs for detailed research purposes in the Restoration Department database. Drawings were made of all current elements of the work, with installation steps that will serve as standards or instructions for successive assembly. The museum's Education Department placed a computer in the exhibition hall, available to the public, which provided a virtual tour through the exhibition and communicate ideas and questions used to assess the level of understanding of the work. The video of the interview was edited to accompany the exhibition, which helped to communicate the concerns of the artist, and promote and disseminate the results of the case study project. Many people saw the video explaining the case study, and through the comments from various visitors we learned that their understanding of the meaning of the artist's work had been greatly improved due to the information obtained from the video.

It also served as a reference for what an art installation could be, which in the words of Dennis Oppenheim, '...expresses a situation...'[9] that involves the development of an idea. The partnership between Dennis Oppenheim and the Conservation Department, and the discussions on how to preserve, display and store the video work produced, according to Oppenheim, a renewed interest in updating his other works that were still on VHS video tapes in his studio.

Installation guide

The map of the installation containing the registration and documentation of the distances and the relationship between each of the elements is essential, especially if the artist wants to keep the original way to install their work, as is the case. The registration of space needs, the distance between each object, the type, colour and aspect of the walls, the kind of floor, the entrances, visitor tours and so on, are all crucial to the success of further future loans ❹.



❹ Floor plan, measurements, distances and location of all the elements in *Circle Puppets* and their relationships with the exhibition room. ILLUSTRATION/SCHEMA Mikel Rotaeche, conservator of the Department of Conservation at the MNCARS.

The installation and manipulation of the work is actually quite simple. It encompasses an approximate area of 300 centimetres in height, 400 centimetres in length, and 300 centimetres in width occupying the corner of two walls placed at a right angle. It is recommended to follow the schematic drawing, which gives approximate measures both of the distance between elements of the work and the walls used in the last assembly in the MNCARS. The crossbars of the puppets are placed side by side on each wall.
The puppets are placed towards the angle between two walls, as if they had fallen by chance after taking part in a fight such as the one seen on TV monitors. These monitors are placed to the left of the viewer, about one metre from the puppets and about one metre from the wall – to allow enough distance to permit the passage of the public – next to each other, forming a small angle between the two monitor screens. The DVD players are placed on top of the TVs, and cable connections are partially visible, and hidden under a power strip that is connected to the nearest electrical current point. The rubber pipes are placed randomly attaching the crossbars to puppets.

Conclusion

Through this case study, in which traditional conservation approaches conflicted with the needs of a time-based media installation, we had an opportunity to think through many issues that will be useful for problem solving in the future. Through the application of methodology developed in the *Inside Installations* project, we increased our experience and developed new documentation methods that will serve the needs of our growing collection of installations.
The active participation of colleagues in diverse departments throughout the museum provided different perspectives that converged to create a better understanding and appreciation of our collections. The communication of our findings to the public through video guides, educational seminars, and website postings had the additional benefit of increasing the curiosity and interest in conservation and research at our museum.

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Who's Right – the Artist or the Conservator?

Barbara Sommermeyer

Abstract
This chapter focuses on the involvement of the artist when an installation artwork is being conserved. It emphasizes the very individual point of view of the artist and of many other professionals that are taking part in the process. Collaboration with all participants is necessary and important, but it is also crucial to reflect the difficulties that may occur. Legal backgrounds are described as well as aspects of artist interview praxis that have not been mentioned in conservation literature. Three examples explain clearly which problems conservators are sometimes faced with during interviews with artists and show strategies that have been useful. The author points out that among all participants that act and decide during conservation of installation art, the conservator works closest with the artwork and provides all necessary requirements to develop adequate conservation strategies.

Introduction

'Can't you ask the artist?' is a question regularly posed during museum tours with regard to the conservation of contemporary art, and especially when dealing with installation art. Many people are particularly interested in the role of the artist in conservation. The people posing these questions usually assume that artists are contacted whenever a difficulty in handling their work of art arises. After all, the artists generally possess the greatest expertise with regard to the relevant materials and their use and are best positioned to help with such inquiries. But does the artist decide about a conservation treatment?

Legislation

The decision-making power granted to artists under German law is only putatively clear. The law states that a work of art is protected by artistic copyright from the time of its creation until 70 years after the death of the artist. But artists do not have any legal right to undertake restoration work themselves (Schack 2009). However, if an artist is dissatisfied with the result of a conservation treatment, he can exert influence as long as the work of art is exhibited to the general public and a very invasive change to the piece has been made.[1] If this is the case, the personal rights of the artist are violated and moral rights apply. If the work of art is not publicly exhibited, ownership rights take precedence over moral rights. This means, that owners have the right to do what they wish with their artworks; they can let them deteriorate or have them restored (Schack 2009).

Nevertheless and regardless of the legislation, the work of a conservator is based primarily on the professional code of ethics.[2] This states first and foremost that conservation must be carried out with strict faithfulness to the

[1] Section 23, Sentence 1 of the German Copyright Act prohibits the publication, exhibition or sale of the modified work of art (Schack 2009, Marginal No. 467).

[2] Code of Ethics of the European Confederation of Conservator-Restorers' Organisation (E.C.C.O.): www.encore-edu.org/encore/Desktop Default.as px?tabindex= 1&tabid=171 Code of Ethics of the American Institute for Conservation of Historic and Artistic Works (AIC): www.conservation-us.org/index.cfm?fuseaction=page.viewPage&PageID=858&d:\CFusionMX7\verity\Data\dummy.txt (accessed April 2010).

original. The conservator has a responsibility to maintain the historicity or the Zeitgeist of the work. But economic interests of the conservator or of the owner may not play any role in conservation decisions.
Ideally all conservators work in relation to the professional code of ethics, but sometimes contradictions arise for both museum and freelance conservators. Conservators from private practices are often influenced by the wishes and ideas of the clients and/or the artists themselves. They are sometimes not negotiable, so that conservators find themselves in a dilemma between the owners' rights and ethical principles in conservation.
Conservators working in a museum are sometimes confronted with conflicts between the interests of the museum and the intention of an artwork; when the originally intended meaning of an artwork demands a perfect condition, the development of patina or cracks as a sign of time and decay is not allowed. But one of the aims of a museum is to present artworks with a historical point of view. Patina or other changes within the artwork create a sense of time and history. This can be difficult for contemporary artworks, especially installation art. Allowing only the historical point of view can contradict the intention of the artwork and therefore create a dilemma for the conservator[3].
But whatever the situation is, there are no standard rules. If owners, artists or institutions specify particular requirements, the conservation strategy will always be individually decided on a case-by-case basis.

The principle task of the conservator

The principle task of the conservator is to maintain the originally intended effect of the artwork. The conservator must determine which details of the artwork contribute substantially to the conveyance of the artistic intention and has to figure out when a discrepancy or damage leads to an incorrect understanding. In installation art it is sometimes even the recognition of damage as such that is necessary to find out.
After a thorough examination of the artwork itself the collaboration with many other professionals is necessary and very useful especially when dealing with installation art. From scientists and manufacturing industries the conservator gains more knowledge about the materials used and the artists' technique. Collaboration with curators and art historians contributes to a deeper understanding of the intention of the artwork as well as the meaning and importance of it within the artists' oeuvre. With owners and curators/art historians information about previous presentations can be researched. Finally interviewing the artist can to a great extend expand and adapt the information and knowledge already gained especially regarding the creation, production, intention and presentation of the artwork.

Roles, points of view and interests

In 1997, at the international symposium *Modern Art: Who Cares?* several authors presented a decision-making model which helps to analyse the decision-making process in the conservation of modern art. The comprehensive process of decision-making is described from the point of view of the conservator who weighs all the different options and possibilities when finding

[3] See also the article by Luber and Sommermeyer in this book.

the adequate conservation strategy (Beerkens et al. 1999). Who eventually decides what action will be taken, lies within the hierarchies of the individual institution or the people involved.

But what has not yet been discussed within the conservation profession is the fact that in the course of research special attention must be paid to the relevance and interpretation of information. Most of the people that are involved in providing information regarding a conservation treatment play a particular role and have their own way of viewing the work of art. Their vantage points may be shaped by interests which prevail in the environment of the respective person and influence their reasons for taking particular actions.

Conservators carry out conservation treatments and therefore work closest with the artwork after it has been created. They are highly interested in the artworks' technique and its material (or the materialization of the idea of the artist[3]) and in an authentic presentation of the artwork. Extensive training, examination and research prepares conservators with knowledge about materials and techniques. They also have an understanding of changes any material can undergo in the course of time and know the risks and possibilities of any measures that might be taken.

Artists play the role of the creator. They have a vision or pursue the implementation of an idea. The opportunity to exhibit the work of art is the prerequisite for recognition of their work and the basis for their success. Their decision regarding conservation may be influenced by their interest in exhibiting it. In addition artists may not be careful with the artwork, because they see the artwork as if it is still in their studio. They may have difficulties to create a distance to the artwork and to take a subordinate role to it.

Assistants are employees of the artist and are therefore generally supposed to act in the interest of the artist. They have less difficulty in creating distance from the artwork and can often provide valuable information about he artists' techniques etcetera. After the artists' death they play an important role in providing this information. Problems may then arise when they still act as the extension of the artist and when their view intends to maintain their position.

Curators place the work of art in a context; they interpret and evaluate. Their success is the general recognition of their interpretation or the success of an exhibition in which the work of art is presented. This can influence their actions and decisions, for example when an installation has to be adapted to a particular space and hence unintended changes are being carried out.

Collectors acquire works of art out of a passion for art, but also as capital investment. Gains or losses in value may be relevant to their decisions regarding conservation. For example, it is understandably difficult for collectors to accept the transitory nature of a work of art and to permit it to deteriorate.

This can be similar for art gallery owners. They act as agents between artists and the art market. They generally work on behalf of artists they have selected themselves and try to place their work successfully in the art market. Popularity and sales prospects can therefore play a major role when discussing conservation strategies, and in doubtful cases lead to a preference for extensive conservation treatments.

Artists' foundations and estate administrators manage and take care of large parts of an artist's work after his or her death. As a rule, they act in the inter-

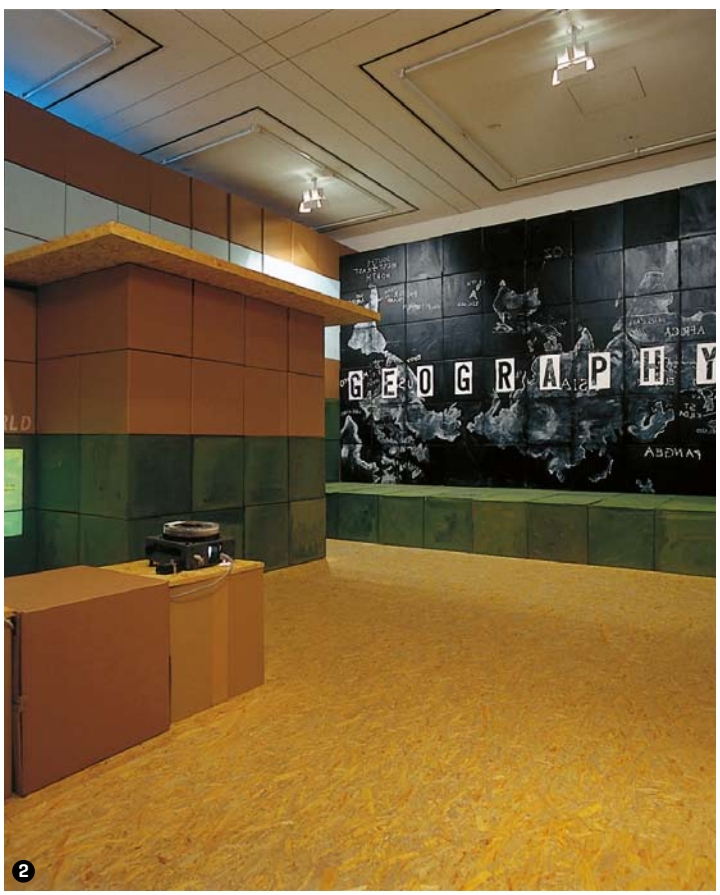
est of the artist, but it must also be remembered that economics play a significant role for the estate. A main concern is that the deceased artists should not be forgotten; on the contrary, their fame should be increased. This is one of the reasons why exhibition projects are strongly supported by foundations, even if they are a risk to the artworks. And it's no surprise either, that foundations prefer deteriorating artworks to remain as long as possible, even as they vanish into oblivion.
All of these varied motives can influence the conservation decision. They can play a decisive role in the decision-making process and therefore have to be recognized by the conservator, if they do exist. This is highly important for the communication process during research so that questions can be asked accordingly and given information can be interpreted correctly. Within this context the conservator seems to be the person who can act most independently. The conservator provides necessary requirements to gather and interpret the information and develop an adequate conservation strategy.

When the artist is involved

The artists' thoughts are very much appreciated and it can be positive and helpful but an alarming message when an artist offers help regarding conservation. It is often difficult for an artist to develop distance from the work of art he or she has just completed or finished ten years ago. The artist often carries a desire to update the piece, which is not permissible from a conservation standpoint. On the other hand it can be difficult, especially in installation, art to figure out when an artwork is not finished and can truly be seen as a work in progress or maybe something in between.
From a conservation perspective, a difficult collaboration in the conservation of a work of art is illustrated clearly in a report on working with the artist Ger van Elk. The museum collaborated with the artist on several conservation projects of faded or discoloured photographic works from the 1970s.[4] Stigter (2004) describes how the artist generally preferred photographic techniques he was currently working with in his art projects as replacement techniques for the conservation work. The inclusion of these new techniques took place regardless of the year of creation and the actual technique used to produce the original work in the first place. He was not able to subordinate his current ideas to his own earlier work. The conserved work highly differed from the original, but was nevertheless authorized by the artist.
Difficulties that can occur with artists in the re-installation of artworks are shown in the example of the exhibition of the work entitled *Balaklava*, created in 1986 by Rosemarie Trockel, from the collection of the Hamburger Kunsthalle. This artwork consists of five patterned knitted caps with slits leaving the eyes uncovered. The caps are presented covering black styrofoam heads ❶. During the preparation for an exhibition, the question arose of the level of aggressiveness expressed by the sculptures depending on the narrowness of the eye slits. The work was installed in 1997 jointly with the artist for the establishment of the Galerie der Gegenwart (Gallery of Contemporary Art). However, there are greatly differing references to this in various publications. As the artist is relatively reclusive and the situation did not provide a sufficient occasion for a personal interview, the question of the

[4] Stigter, 2004, pp. 105-108.

❶ Rosemarie Trockel, *Balaklava*. 1986. Hamburger Kunsthalle, exhibition shot from 1997. The objects were presented on a shelf with black styrofoam heads. COPYRIGHT Hamburger Kunsthalle / bpk / VG BILD-KUNST, Bonn, 2010. PHOTO Elke Walford.



❷ Ross Sinclair, *Journey to the Edge of the World – The New Republic of St. Kilda*. 1999/2002. Hamburger Kunsthalle. The chalk drawing on black painted cardboard boxes is part of the installation. Green boxes stand in front and function as a barrier. COPYRIGHT Ross Sinclair, Hamburger Kunsthalle. PHOTO Elke Walford. ❸ Christian Boltanski, *Réserve: Les Suisses Morts*. 1991. Stiftung für die Hamburger Kunstsammlungen. The lamps should line up straight, the cable should show some disorder. The cable had been replaced shortly after its acquisition. COPYRIGHT SHK / Hamburger Kunsthalle / bpk / VG BILD-KUNST, Bonn, 2010. PHOTO Elke Walford.

intended strength of the aggressive expression of the individual heads was sent through the gallery to the artist by e-mail along with a photo of the work. The reply from the gallery was fairly swift and contained the information that the artist considered this form of presentation obsolete and that she now favoured a new version. An attached photograph showed a cap laid flat on its side. Apart from the fact that in the original the knitted caps have fabric appliqués bearing number and signature in the centre of the neck, making folding problematic, this form of presentation of the artwork has a completely different effect and meaning. In the end, the curator and conservator decided to continue presenting the work in its familiar form, as this is deemed to be the historically appropriate form and changes in the work were not part of the original concept.

Although the question was posed correctly, it brought up a conflict rather than helped with the further understanding of the work. Therefore it can sometimes be a better idea not to have the artist involved if there is no room for an appropriate comprehensive and personal discussion.

Despite possible difficulties, contact with artists is generally very valuable. They can provide an abundance of information that is helpful and required for the understanding and thus for the preservation of a work of art. It is important to understand the artists' way of thinking and their way of working. During conservation, questions arise regarding the understanding of the work, important clues and significant details need to be clarified. What constitutes damage? When is the damage so disruptive that it impairs the effect of the artwork too much?

In an oral interview which took place in his home and studio near Glasgow and lasted several hours, Ross Sinclair provided important information about his work entitled *Journey to the Edge of the World – The New Republic of St. Kilda* created between 1999 and 2002 ❷.[5] Surprisingly, it became clear that the smudges in the chalk drawings of a large-scale world map on cardboard painted black, which were initially interpreted as damage, were part of his artistic intention. 'The chalk drawing…looked far too clean… so I started rubbing around in some areas to achieve more ambiguity'.[6] This had decisive consequences for the planned elimination of smudges and the fixation that was part of the conservation treatment. In the end only those smudges were removed which could clearly be classified as damage during transport.

It also became clear in the interview that there are very precise and important details in the fabrication of the installation, even though the artist generally indicated that many things could be handled with a great deal of freedom.

Approaching the artist

It is particularly attractive to be able to talk to the creator of the work of art personally. Thus it is understandable that the idea of interviewing the artist quickly occurs when problems with the artwork arise. However, it is also advisable not to act too hastily. Even if an interview is recommended, it is absolutely necessary to acquire and process as much information about the artwork as possible in advance. It is crucial to be as well prepared as possible for the discussion in order to immediately recognize and clarify any discrepancies.

5 This work was exhibited in Edinburgh in 1999 for the first time. It was purchased by the Hamburger Kunsthalle in 2002 and installed there in the same year. It was a case study of the *Inside Installations* project. Details of the work and the conservation and restoration measures are available on the website www.inside-installations.org.

6 See the interview with Ross Sinclair at www.inside-installations.org/artworks/detail.php?r_id=130&ct=interview (accessed April 2010)

In general, an interview is a psychological situation in which great sensitivity to and empathy for the person being questioned is required. If you approach an artist to ask questions about a work of art, you have to consider that current moods may prevail. The interviewer must correctly recognize the situation, the feelings and the mood of the interviewee. Thus the necessary and possible questions are developed. If the interviewee becomes impatient, the answers will differ accordingly.

It is also helpful to familiarize yourself with the personality of the artist, to ask colleagues about their experiences with the artist and to adapt the style of the interview accordingly. The works of art often reveal a number of things about the personality and character of the artist. For example, Reiner Ruthenbeck, is a conceptual artist whose works are very precisely crafted and frequently manifest perfect surfaces or materials. He was extremely focused and present in a personal two-hour interview, so that an equally precise and well-crafted interview structure was very easy to maintain.[7]

There are various styles of interviewing with greatly differing levels of quality.[8] It is understandable that a long, personal conversation – possibly over the course of several days or several appointments – can produce better results than a single question sent by e-mail via the gallery to the artist. If a question arises during the course of a conservation project, it is not always possible to make use of a detailed personal interview. The artists are not always willing to be interviewed or cannot spare the time. Exhibition set-ups usually provide good opportunities for a relaxed exchange of information in which trust can slowly be built up between the conservator and the artist. If any unclear issues remain, they can be clarified in the course of time.

During preparations for an exhibition in the Liechtenstein Museum the opportunity for an interview arose during the set-up of the installation *Réserve: Les Suisses Morts* (1990), by Christian Boltanski. The installation consists of 1,368 square cookie tins and thirty-six steel shaded lamps which together form an illuminated corridor and display passport photos of deceased Swiss citizens. During the set-up the artist voluntarily brought up several points that were important to him. It became clear that he had strong feelings about the idea of orderliness and accuracy in his work. Thus, for example, the assumption was confirmed that despite the emphasized inaccuracy visible in the work, the position of the lamps in the installation must form an absolutely straight line ❸. This is not obvious, since the artist felt strongly about the metal boxes, for example, standing a bit awry now and then. A discussion over the orderly hanging of the cables arose, which in Boltanski's works is usually significantly messy. The messy cables had been replaced by straight and orderly ones for security reasons shortly after acquisition of the installation in Hamburg. Boltanski liked the straight cables, but after further questions about his opinion on this, the artist changed his mind and agreed that it should be presented in a more disorderly way. He excused his previous opinion with the statement that he didn't feel like changing the hanging now again. The next time the installation is set up, the hanging of the cables is to be changed.

It took three days of rapprochement and further questioning to find out the true views of the artist on this point. This shows that even in relaxed and

7 Budde ,2007; publication of the interview is also planned at www.artemak.de.

8 The advantages and disadvantages of various interview styles as well as valuable and helpful publications with references and recommendations on interviewing artists, suggestions for lists of questions, and so on can be found at www.incca.org under Resources>Artist participation (accessed April 2010)

trustful situations, it can be difficult to find true answers. Artists often force their way into the role of problem solver for the conservator. Or like in this case, they fear that their responses will have consequences they don't like. The artist is also likely to choose an answer from the treasure trove of possible actions familiar to him or which appear to be possible for him. However, the options for action available to conservators are much more comprehensive based on their extensive training, patience and commitment.
Ross Sinclair was quite surprised with regard to the effort and expense that incurred with the fixation of his chalk drawing ❷ using ultrasonic misting, but was very satisfied with the result. He never would have proposed the fixation from himself: 'Are you sure you wanna do this? This is gonna take so much time. I feel guilty not having done this myself'. In a conversation about the condition of the chalk drawing he admitted he hadn't managed to fix the chalk, because the quality of conventional fixatives was not satisfactory to him. It is crucial in interviews to differentiate the viewpoints, experiences and expertise between the artist and the conservator. It is important to make clear that the goal of the questions is not to make the artist provide suggestions for solving the conservator's problems. Instead, the artist is expected to explain more details about the intention of the artwork and to express which details are crucially important for conveying this intention.

Conclusion

In the conservation of installation art an abundance of information can be compiled by the conservator from many different sources and in collaboration with many participants. The artist is one of the participants and a very important key figure in this process, but the artwork itself is the central source of information.
It is a high-wire act requiring great sensitivity and diplomacy to maintain the boundary between productive inclusion of the artist's opinion on the intention of the work of art and direct action or possible changing or improving of the work by the artist. In the end, the question is not whether the artist or the conservator is right. It is actually the work of art which speaks for itself in cases of doubt, but it does need a good interpreter. The artist is the creator of an artwork and the conservator is the critical interpreter of all information that the artwork and its context provide after it has been created.

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Chris Burden, *Beam Drop Brazil*, 1985-2008. PHOTO Bruno Magalhães.

Lucas Sigefredo

Inhotim is a unique museum complex consisting of 18 exhibition pavilions and open-air sculptures dotting a 97-hectare botanical garden of outstanding beauty. This huge space is surrounded and filled by lakes, gardens, valleys and a considerable tropical forest. All these elements together bring a completely different experience to the visitor. Inhotim is situated in Brumadinho, 60 kilometres from Belo Horizonte, capital of Minas Gerais, the third biggest state of Brazil.

Artists from all over the world are invited to create an artwork (for permanent or temporary display) inspired by this unique environment and with the fewest limitations as possible. The collection comprises over 500 works by artists such as Adriana Varejão, Helio Oiticica, Cildo Meireles, Chris Burden, Matthew Barney, Doug Aitken, Janet Cardiff, to name a few.

As most of the works are site specific, several challenges arise: the choice of materials and technology, the space where the piece will be displayed, the conservation aspects, the environment and the relationship between the artwork and visiting public and the collection itself are things to be considered.

Part of my job as technical director at Inhotim is to take care of the physical aspects of the collection. My team from the Technical Department and I are responsible for making the artists comfortable and confident enough to create whatever he or she wants. All of the technical details – materials, systems, technologies, processes, pre- and post-production, and so on, are our responsibility.

Our department is divided into three sections: art production, conservation and restoration, registration

On all these fronts we have one goal: to ensure the artists' vision will be available for people to see in the future, despite technological obsolescence.

To produce, install, conserve, restore (when needed) and show the large complex collection, the team focuses on the artists' conceptual thoughts and desired final results.

A very important aspect to be considered is the capability to help artists and curators to transform ideas into concrete projects and then into individual artworks or even entire pavilions. Visualising what the artist's intention is and where he or she wants to end up is the first big challenge. The second challenge is to answer exactly how this should happen. Usually the answers come organically, during the process. To guarantee the integrity of the decision-making process, it is essential to register in detail all steps of the production process into accessible data including photos, videos, texts, interviews, audio recordings, emails, messages, and the like.

Finally, one of the most important issues is the conservation directive. Once a conservation team is involved in the production process, it becomes much easier to consolidate, track and control all the information regarding a possible degradation process, always regarding the artist's intention.

Part 4

Recording the Process and the Process of Recording

Documentation of Change – Change of Documentation

Gunnar Heydenreich

Museum collections should be documented according to accepted professional standards. Such documentation should include a full identification and description of each item, its associations, provenance, condition, treatment and present location. Such data should be kept in a secure environment and be supported by retrieval systems providing access to the information by the museum personnel and other legitimate users.
ICOM Code of Ethics for Museums, 2004 [1]

Abstract
This chapter provides a general introduction to the subject of documentation of contemporary art and it explores various challenges, initiatives, methodologies and perspectives in documentation of media art installations. The study also reflects on aspects related to the practice of documentation, such as: history and Zeitgeist, functions and meaning, subjectivity and objectivity, priorities and economy, preservation and dissemination. Several models for the documentation of installation art are presented in a survey.

History and Zeitgeist

Documentation of collections has a long history and it has always been a challenge to develop appropriate methods. There are references in ancient literary sources to alterations in the condition of artworks and preservation measures carried out.[2] The contents of eighteenth-century public galleries and curiosity cabinets became systematically more accessible with structured catalogues, illustrated with copperplate engravings.[3] In the nineteenth century, photography rapidly became the most important medium of documentation and by the middle of the century the first photographic documentation of restoration treatments appeared.[4] The first film material documenting artists like Renoir, Monet and Kandinsky at work has been preserved from the early twentieth century.[5] The enormous loss of cultural assets during the Second World War raised awareness to the importance of documentation and resulted in the development of new strategies. In 1950, the International Committee for Documentation of the International Council of Museums (ICOM-CIDOC) was founded and since then has provided a forum for sharing knowledge gained in heritage collections.[6] The international Charter of Venice (1964) on the conservation and restoration of public monuments made it mandatory that, 'in all works of preservation, restoration or excavation, there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs'.[7]
Additionally, contemporary artistic discourse reflected a growth of interest in documentation during the second half of the twentieth century. While the

1 http://icom.museum/ethics.html [accessed 26 April 2010]
2 Plinius, L. and Pausanias, see Faltermeier, K. 1994. 'Sinn und Zweck der Dokumentation', in Österreicherischer Restauratorenverband et al. [eds.] Dokumentation in der Restaurierung, Journal 04, pp. 3-6.
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6 http://cidoc.mediahost.org [accessed 26 April 2010]
7 www.icomos.org/docs/venice_charter.html [accessed 26 April 2010]

anti-traditionalist avant-garde and minimalist art of the 1960s were in principle engaged in forgetting, the movements of pop art and nouveau réalisme adopted a return to the mnemonic purposes of art. In the 1970s artists like Boltanski, Darboven, Gerz and Messager dealt with the subjects of collecting and preserving. Since then many artists have developed artistic strategies in association with remembrance, collection and documentation.[8]

Through photography and film documentation, the impact of twentieth-century art experienced a rapid expansion. Since the 1960s action and performance art has been captured on film and the border between documentation of artworks and the documenting artwork has become increasingly blurred[9]. Without doubt the experience of the transience of modern materials and media has promoted an awareness of the significance of documentation. Within a comparatively short period of time artists and museum professionals are being confronted with the problem that, due to instable material and obsolete technology, artworks are no longer accessible and documentation acquires a new relevance.

Today documentation means the selection, collection, order, storage and availability of documents for particular target groups.[10] Documentation within the museum environment is comprised of two main activities:

— Selection and recording of information on artworks, including their physical characteristics, meaning, history, context, condition and presentation.
— The process of organizing, correlating, archiving, updating, managing and disseminating that information.

Documentation serves to provide a better understanding of artworks including their historical, aesthetic, social and economic values and significance. Documentation reflects past and current understanding of artworks and artistic activities. It may offer new views on authenticity, display and function as well as changes in the appearance of works of art. Documentation provides a tool for monitoring, assisting conservation management and guiding the process of conservation and restoration treatments. Adequate documentation is important to manage collections effectively and to use limited resources efficiently. Through documentation results of research activities are recorded and may be communicated and shared. Therefore documentation is an essential activity in museums.

Challenges in documentation of contemporary art

Artistic practices and their perception have changed significantly within the twentieth century. Artists employ a formidable variety of new materials and media, many of which have an unknown or relatively short shelf life. Artists are giving individual and different meanings to the materials and techniques they use. Production processes are extremely diverse and artists often make the process of production and change an essential element of their works. The transience of artworks is repeatedly the subject of artistic interest. We know that in 50 or 100 years' time many contemporary art objects which have entered museum collections will, despite increased effort, either no longer exist or will only exist in dramatically altered form. There is an acute need to develop suitable strategies and methods to document this form of artistic expression and thus make it lastingly accessible.

[8] Schaffner, I. and Winzen, M. 1997. *Deep Storage – Arsenale der Erinnerung*, Munich: Prestel.

[9] Buschmann, R. and Wiese, S. 2007. *Fotos schreiben Kunst-Geschichte*, Cologne: Dumont Buchverlag.

[10] Cf. Koch, W. 2002. 'Gedanken zur Museumsdokumentation', *Information 53,* 327.

❶ Dieter Roth: *Solo Szenen* (1997–98), 128 Video monitors on wooden shelves, 131 VHS video cassettes, ca. 210 x 1200 x 45 cm, Christian Flick Collection, Hamburger Bahnhof, Berlin, 2009. The videos show the artist's working life. COPYRIGHT Dieter Roth Foundation, Hauser & Wirth, Zurich.

With ephemeral art such as action, happening or performance art artistic processes are no longer primarily focused on generating a single materially existing work. Documentation records primarily the artistic process and re-presents it occasionally in later exhibitions. Conceptual works are based on documented operating procedures and thus delegate the implementation rights. To an extent documentation replaces the artwork, which could not be visualized and conveyed to posterity without it.

Since the emergence of video as an artistic medium in the mid-1960s a wide range of new media art practices have developed. Documentation needs to cope not only with changing formats, rapid obsolescence of technologies, variable components and the dissociation of the artistic statement from the material carrier. It also needs to cover dialogues with related media such as television, film, performance, and the Internet in diverse constellations with interactive and hybrid forms of presentation.[11] In addition, the complexity of documentation has increased due to the fact that some artists are very specific about the way in which their work should be installed while others are less so and even continuously alter their works in different ways. In the process the traditional borders between the creative process and later alterations in condition become blurred. Media artworks are today frequently sold with a limited performance licence. Documentation gains further complexity when, for example, artists like Rosenbach and Roth incorporate the documentation of their own works as an integral part or subject of their work and thus occasionally transform processes and objects into a new condition ❶.

Documentation of contemporary art covers a wide spectrum of technical and conceptual aspects, that is, light, sound, space, movement, video, interaction with visitors, tactility and olfactory effects. In order to document, preserve, present and understand these artworks there are particular skills as well as innovative instruments and structures required. Due to the visual, dramaturgical and technological complexity of installation artworks as well as their metamorphosis it is often difficult to define and implement the extent and method of documentation necessary. The required degree of documentation can vary considerably and requires prior analysis. At present no standards exist and the recording of information is frequently determined by time and economic constraints.

As contemporary art is often created through interdisciplinary collaboration, its documentation requires, to a larger extent, multidisciplinary activity. Artists and media technicians avail of the newest industrial high-technology components and combine and modify them according to their individual artistic intention. Information about their assembly and mode of operation is often in various locations and difficult to obtain. Digital media art questions the museums' approach, which concentrated up until now on collecting objects and generating object-orientated documentation. In addition there are many external factors that influence the presentation of media artworks. Different spatial and economic conditions, as well as the co-operation of exhibition organizers, artists and technicians, influence the appearance of the work at different venues. Artworks with temporary or interactive components change depending on the location and time. To ensure that future generations understand these works documentation cannot be limited to recording their

[11] Cf. Frohne, U., Schieren, M. and Guiton, J.-F. (eds.) 2005. *'Present Continuous Past[s]' Media Art. Strategies of Presentation, Mediation and Dissemination*, Vienna and New York: Springer. Frieling, R., and Herzogenrath, W. (eds.) 2006. *40 Jahre Videokunst.de – Teil 1*, Ostfildern: Hatje Cantz Verlag.

physical appearance and function. It must also consider context, relations, their effect on the viewer and the viewing habits of visitors.
A further challenge is to employ forms of documentation, which enable the visualization and study of media artworks. Whereas today traditional visual art genres such as painting or photography are retrievable via reproductions, there is no form of documentation for multimedia installations which allows a similar degree of study. While a painting can be studied for research purposes in the storage rooms or studio, there is no equivalent for media installations, and screenshots or photographs do not provide a viewer with an adequate impression of works which are based on moving images and or variable projection levels. This appears even more important particularly as the human visual memory seems to be less experienced with regard to moving images ❷.
Reproducibility of video material offers opportunities but at the same time documentation produces problems concerning the status of the original, authenticity and copyright. How are the artist's intention and the viewer's reception influenced when a multiple-channel video installation is made available as a documentary version on a computer screen? In addition, the new media's principles of order are infinitely more complex, in that various authorized versions of a video can exist, of which further copies are produced for varying purposes, each requiring different storage conditions and possibly with different legal terms of use.
Documentation is the basis for and supports the central activity of museums: collecting, storing, research, presentation and transmitting art and cultural heritage. The following aims exist with regard to contemporary art:

— Documentation facilitates the preservation and presentation or representation of artworks at an operational level. It is the basis for developing preservation strategies, planning loans and presentation, determining environmental conditions and risk assessment.
— Moreover, documentation is an essential basis for understanding and mediation of contemporary artworks and defining their artistic significance in a historical perspective. Installation artworks can only be experienced when exhibited, but as only a small percentage can be exhibited, it is important to communicate works through documentation. Documentation also provides an important tool to communicate ephemeral art to present and future generations.
— Finally documentation and information management contribute to a more efficient use of resources in museums. An appropriate degree of documentation at the right time avoids later difficulties in the presentation and restoration or even loss of artworks.

How to document contemporary art?

The question of how to document media and installation art has occupied artists, curators, media scholars and conservators since the 1960s. In recent years, various systematic approaches have been applied and different technical possibilities tested. This includes artists' questionnaires and interviews, the production of models, developing checklists, templates and workflow procedures, instrumental analysis and, more recently, the adoption of newer imaging techniques like laser scanning, 3D video analysis and virtual

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❷ Nam June Paik, *Fish flies on sky* (1974/85/95), 88 Video monitors, Stiftung museum kunst palast Düsseldorf (ABOVE) condition before 1993, (BELOW) condition since 1995). One of the first video installations in a German museum, this work has been there since 1985. After it was destroyed by fire in 1993, it was reinstalled in 1995 in cooperation with Paik. He produced a completely new video sequence without making this known. The viewers' capacity to remember was evidently so limited that in the following years no one addressed or reflected on the completely altered appearance. This alteration was only noticed in 2007, after it was compared with earlier documentation. PHOTOS Stiftung museum kunst palast, Düsseldorf. ❸ Installation of Yinka Shonibare's *Victorian Philanthropist's Parlour* (1996/97) in the museum kunst palast in 2004 using printed installation plans. PHOTO G. Heydenreich.

reality panorama photography.[12] Analysis of earlier documentation has proved that suitability of all these different methods and techniques is dependent on specific tasks. Documentation usually has a definite motivation and aim and accordingly different methods and techniques are employed with varying degrees of success.

— Documentation in association with the production or acquisition of an artwork is geared toward recording materials, technical equipment, operational processes, the essence of the work, as well as modes of presentation. It thus becomes a reference for future presentations and a basis for developing preservation and cost management strategies. It is important to consider artist information and purchase agreements here. Sustainability is essential as the documentation focuses on establishing a basis for the future preservation of the work and registering its genesis.
— Documentation associated with loans generally concentrates on recording the present condition, methods of packing, instructions for installation, and the conditions for presentation ❸. For a borrowing institution the emphasis is on the condition of the work when it entered and left their possession, providing a condition report for owners and insurance companies. These are usually done quickly and efficiently; sustainability plays a subordinate role here.
— Documentation associated with a restoration traditionally includes a detailed condition report in order to develop the restoration concept. The starting point is usually a defect or damage. It is often accompanied by specific research, material analysis or contact with the artist regarding precise problems. Restoration documents are traditionally kept long-term.
— Documentation associated with research projects and mediation is usually developed out of a series of questions, which consider the individual work within a broader context. This approach concentrates less on the operational level and more on suitable methods of transmission and visualization, which will serve the study and understanding of the work. The documentation may be supported by exhibition catalogues or less static, as for example changing presentations on websites.

In accordance with the different aims, approaches and technical methods there are also different and changing categories of documentation with regard to the storage media[13].

Material-based documentation

Documentation in its broader sense may also include the collection and archiving of material samples, models and appliances that complement artworks but are not part of the artwork. Today material-based documentation of contemporary art is still understood and valued differently by museums.

Analogue text- and image-based documentation

In most institutions, the primary source of conservation information is still a paper folder, stored in the conservation department. It includes condition and treatment reports, photographs, correspondence, interviews, removed labels and installation plans. Similar folders are often kept in different places such as curatorial, registrars, technicians, framing and photography. Experience

[12] See also the contributions by Reinhard Bek and Ulrike Baumgart in this book.

[13] Categories of documentation such as primary, secondary and tertiary documentation have been under revision several times. Cf. Nicolaus 1998, pp. 374-383.

shows that analogue documentation of media installations can become very extensive and difficult to manage after relatively short periods.

Digital text- and image-based documentation

Although by the 1960s the first computers had been introduced into museums it is only since the 1990s that a significant increase in the employment of digital technology for documentation purposes can be observed. Simple inventory programmes of the first generation have meanwhile been replaced by complex collection management systems, which are also applied within conservation documentation. However, text processing software still is often used by conservators despite the fact that digital records of installation art due to its complexity is difficult to manage with text software only. Updating and versioning of text files may cause much time to be wasted in locating changes and determining the most current versions. Also, in the long-term, multiple file formats that are generated with different documentation and analysis procedures may only be accessed with great effort. Finally, due to digital photographic documentation a correlation between image and text documents can no longer be taken for granted. Long-term preservation and costs for the maintenance of documentation provide a major challenge for institutions.

Since documentation of media art in museums is often scattered in various departments and is in varying formats, a primary requirement for digital documentation systems is the capacity to manage and link all the information that is generated. Collection management systems, however, have been developed for traditional artworks such as paintings and sculptures and normally do not take into consideration complex media installations or digital artworks. Systems based on relational databases are overtaxed by complex non-object-based approaches and large quantities of high-resolution images are a general problem. Alternative models such as the CIDOC Conceptual Reference Model which attempts to organize complex information on a general 'meta' level provide attractive alternatives but have so far not been applied.[14] Although there is much progress, no single system currently exists that can successfully accommodate the full scope of requirements for the broad range of media and workflow procedures represented by the entire conservation profession.[15]

Initiatives for the documentation of contemporary art

The growing awareness of the necessity to develop more structured storage and data acquisition systems for media and installation art has in the last ten years resulted in various initiatives to improve methods and systems. Most of these initiatives concentrated on the questions of terminology, content and the structuring of information. In recent years, workflow procedures, inter-institutional networking, long-term preservation and dissemination have become the centre of interest.

[14] http://cidoc.ics.forth.gr/ (accessed 26 April 2010)

[15] Green, D. and Mustalish, R. 2009. Digital Technologies and the Management of Conservation Documentation, http://mac.mellon.org/issues-in-conservation-documentation/mellon-conservation-documentation-survey (accessed 26 April 2010), p. 7.

Modern Art: Who Cares? Models for data and condition registration[16]

Between 1995 and 1997, members of the Foundation for the Conservation of Contemporary Art / SBMK developed two models, one for data registration and one for condition registration of contemporary artworks. As a result of previous experience that a system of open questions would be better suited for recording the information instead of a system of multiple choice, the models considered new approaches to registration with description of materials and techniques, presentation, meaning, and ethical guidelines for conservation. At the time, little consideration was given to a conversion into digital information technology.

Variable Media Network[17]

The Variable Media Network proposed a preservation strategy that has emerged from the Guggenheim's efforts to preserve its collection of conceptual, minimalist and video art. The initiative aims to identify strategies for preserving artworks with the help of an interactive questionnaire. It encourages artists to define their work independently from medium so that the work can be translated once its current medium is obsolete. The variable media questionnaire is an interactive form linked to a database and designed to assist artists and museum staff in writing variable media guidelines. The database to which it is linked was made available in 2003 and has since been further developed. However, integration or linkage of this approach to the operational level in museums appears to be a challenge.

Matters in Media Art[18]

The multi-phase project was designed in 2003 by curators, conservators, registrars and media technical managers from New Art Trust, MoMA, SFMoMA and Tate to provide guidelines for the care of time-based media works of art. Within the project, process diagrams and documents for the acquisition process and loans of media art were developed. Guidelines and templates include condition reports, facility reports, installation specifications, cost assessment, purchase and loan agreements as well as copyright agreements. They successfully incorporate new requirements provided with media artworks. All templates are provided as text documents, however, which raises questions about institutional organization, long-term storage, versioning and access.

Capturing Unstable Media[19]

In 2003, the archive team of the V2_Organisation (a centre for culture and technology in Rotterdam) conducted research on the documentation of electronic art activities. Based on the findings from case studies, first recommendations were formulated on documentation strategies for electronic art activities; formal modelling and metadata and archival interoperability. Capturing Unstable Media presents a complementary approach to the widespread material- and object-focused approach in the preservation of contemporary art.

[16] Berndes, C. 1999. 'New registration models suited to modern and contemporary art', in Hummelen, IJ. and Sillé , D. (eds.) M*odern Art: Who Cares? An interdisciplinary research project and an international symposium on the conservation of modern and contemporary art*, Amsterdam: Foundation for the Conservation of Modern Art/ Netherlands Institute for Cultural Heritage, pp. 173-195.

[17] www.variablemedia.net/e/welcome.html (accessed 26 April 2010)

[18] www.tate.org.uk/research/tateresearch/majorprojects/mediamatters/ (accessed 26 April 2010)

[19] http://capturing.projects.v2.nl (accessed 26 April 2010)

[20] www.aktivearchive.ch (accessed 26 April 2010)

[21] www.docam.ca (accessed 26 April 2010)

[22] www.inside-installations.org/research/index.php (accessed 26 April 2010).

[23] Concept and realization: Gunnar Heydenreich, Martina Pfenninger, Ulrike Baumgart, Reinhard Bek, Maike Grün, Ulrich Lang, Barbara Sommermeyer and Thomas Zirlewagen.

Aktive Archive[20]

Aktive Archive is a collaborative research project run by the Hochschule der Künste Bern and the Schweizer Institut für Kunstwissenschaft in Zurich, which since 2004 has addressed issues concerning the preservation and documentation of electronic art. Aktive Archive is examining possibilities and methods of documentation, conservation and restoration of the most diverse forms of media art. Within the framework of the project several studies were carried out on the documentation of audio works, storage concepts and acquisition of metadata of web art, documentation of out-moded technical equipment as well as a compendium of image interference, which assists the identification and diagnosis of damage on video tapes.

DOCAM[21]

The DOCAM (Documentation and Conservation of the Media Arts Heritage) Research Alliance was created by the Daniel Langlois Foundation in 2005. It was entrusted with a mandate to advanced solutions and tools to allow artists, museum professionals and collectors to better document and preserve media arts heritage. The mission of the DOCAM Research Alliance has been to identify and implement five research axes and propose tools, guides and methods that contribute to the preservation of the media arts heritage. The axes are conservation, documentation, cataloguing, technological timeline and terminology. Five tools and guides were produced and are accessible on the DOCAM web site: 'A Preservation Guide for Technology-Based Artworks'; 'A Cataloguing Guide for New Media Collections'; 'A Documentary Model' (adapted to media arts); 'The DOCAM Glossaurus' (a bilingual terminological tool); and 'A Technological Timeline', which includes both media artworks and technological components. The cataloguing guide provides a template to structure information on media artworks.

The Inside Installations Documentation Model (2IDM)[22]

The 2IDM was developed in collaboration between conservators, art historians, scientists and developers of information systems during the Inside Installations project.[23] It provides information architecture to record the evolution of artworks, in particular installations. The model provides a guideline on how to structure information and relationships in any collection management system based on relational databases. The model is understood as a proposal for documentation specialists, curators and conservators to formulate requirements for information systems. It does not attempt to detail all of the information required from an administrative or collection point of view, but it may help professionals and students to structure documentation without a digital information system. A strong focus has been placed on daily museum practice.

The model is represented on the *Inside Installations* website with 12 diagrams (PDF-files which can be downloaded from the project's website). A general overview is given in the Data Model Map (based on the case study 'Lichtraum'), which includes all the basic elements of the information management system and shows different types of relations between artworks, records on artworks (artefacts) and their respective elements, as well as

relations to archives and special modules ❹. The 2IDM considers four basic modules: identification and description, material and technique ❺, location and exhibition history, and condition and conservation. Furthermore, the model provides instructions for documentation procedures, for example, the creation of new records within different modules, as well as additional records describing evolution over time and the work's conservation history. Special features include links to various archives and thesauri as well as several checklists for recording information. However, as new technology will continuously provide other possibilities for documentation there is no doubt that this model will also need to be re-examined and, where appropriate, further developed.[24]

In addition to the above there are numerous other initiatives and projects which cannot all be listed here.[25] There is a great deal of experimentation and research underway which must take into account the complexity of the information, the variability of contemporary artworks, institutional and professional culture, skill sets and resources of the users.[26] To date there is no generally accepted model and there probably will not be a single one in the near future. Nevertheless, in the past decade great progress has been made with a variety of approaches.

Subjectivity and objectivity

Common to all of the above-mentioned projects is that, where possible, they seek objective criteria, methods and technical solutions for a systematic, effective and long-term documentation. The documentation of contemporary art requires specialized knowledge and is without doubt subjective. Depending on the type of work, knowledge in the fields of art history, ethnography or electronics as well as about a large variety of synthetic materials, video and reproduction techniques, data carriers, and sound and light technology may be required. This is something that artists and museum professionals cannot achieve to the depth required in every discipline. Interdisciplinary cooperation appears to be the only solution. Documentation also requires a common language; but the terminology of media art is complex and short lived. Industry puts the emphasis on change; materials and technology develop more quickly than appropriate new terminology and standards to define or systematically catalogue material or damage.[27]

Our descriptions are usually based on diagnosed phenomena, but our perception is subjective. Experience shows that even qualified specialists perceive and record alterations in installation art differently. In addition variables like light, contrast or sound level cannot easily be determined without elaborate technical devices. Now and in the future it will be necessary to consider the varying levels of qualification that people generating documentation data have. It is not always possible to call in specialists and museum employees are increasingly only on short-term or project-based employment contracts. Here, centralized data storage could be an advantage in that it may eliminate imprecision and mistakes arising from input by individuals over time.

In the documentation of traditional art the combination of text and photographs as well as the use of scientific examination methods such as x-radiography, infrared reflectography and photomicrographs has guaranteed

[24] In part, the model was realized in the Digitale Kunst- und Kulturarchiv Düsseldorf (d:kult), a joint initiative of ten museums of the city of Düsseldorf. Cf. www.duesseldorf.de/kultur/kulturamt/dkult/index.shtml.

[25] Within the *Inside Installations* project further documentation models have been developed on the basis of word processing programmes. (Document structure by Tate and S.M.A.K.; Document manager by MNCARS, see www.inside-installations.org/research/index.php. For further projects see also www.incca.org/resources/38-documentation and the Karlsruhe lectures [www.inside-installations.org/project/index.php].

[26] Green and Mustalish, 2009, p. 67.

[27] Cf. CAMEO: Conservation & Art Material Encyclopedia Online http://cameo.mfa.org/. (accessed 26 April 2010)

increasing objectivity and quality. For contemporary art, in addition to photography and video documentation, new methods such as three-dimensional laser scans, three-dimensional video analysis and virtual reality photography are be tested[28] with regard to long-term preservation.

Priorities and economy

Documentation processes take up a considerable amount of the conservator's time, draining capacity and causing costs. This testifies to the general growth of awareness with regards the significance of documentation, but also results from a continuous increase in the number of exhibitions and loans. In view of the exhibition roundabout, which turns ever-faster, conservators must find a balance between documenting their own museum's collection and loans as well as practical conservation and restoration. Inevitably the question of priority and the economy of documentation must be raised: on the one hand employing new methods and technology means that the documentation can be carried out with less effort and that the collection can be studied more effectively in more depth and kept for longer. On the other hand, the question arises as to whether practical conservation treatments can be neglected in the light of limited resources. How much time should conservators invest in active conservation treatment and documentation? How much greater is the danger of a total right off when the artwork has not been documented? Can we clearly communicate the benefits of documentation? No doubt, there are benefits and if these benefits were more effectively communicated, greater resources could be allocated and duplication of work could be reduced, also decreasing the cost of conservation. New technologies can help reduce the cost and time necessary to record and document our cultural heritage. But, there is also a need to improve low-cost and low-tech tools that could satisfy documentation needs.[29] For each project, the needs must be established and, in response, the possible options assessed. It is usually more cost effective to ask the artist to provide documentation when the artwork is acquired by a museum, interview an artist when a new work is acquired and to generate a contract to solve issues of maintenance and copyright instead of trying to produce such documentation 20 years later. The more structured data recording and maintenance becomes, the lower the costs will be and the less failures can be expected.

Preservation and access.

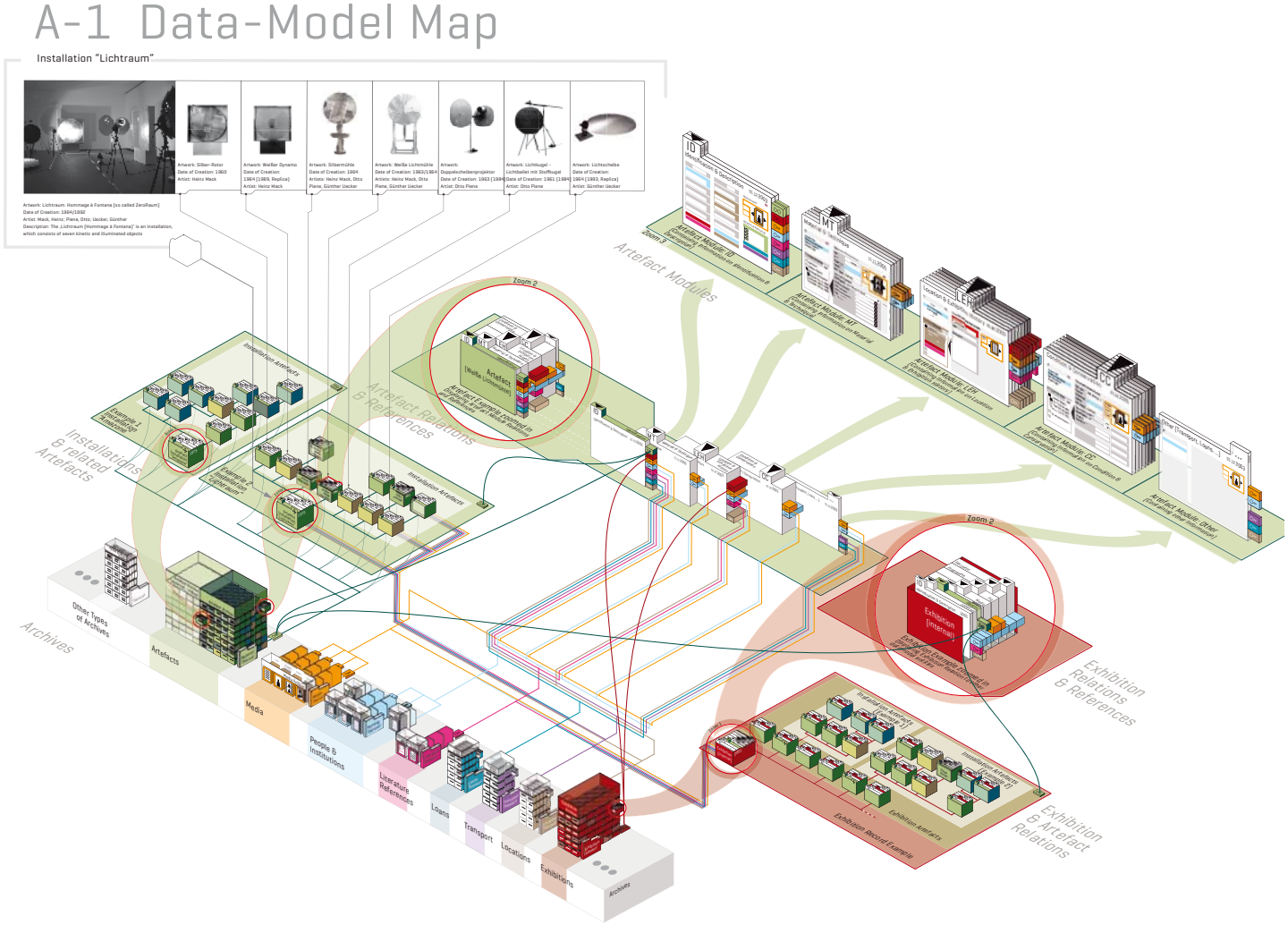
Recent studies[30] show that museums and their conservation departments deal quite differently with long-term storage: while many institutions have developed strategies to steer long-term archiving, others still save lists of objects in text documents and images on a local hard disc or CD. At the moment there is no developed solution for the combined management of high-resolution images and complex text-based documentation. Even if a solution were found for standard image formats the question arises as to whether and to what extent the data, which is generated by new analytical and imaging technology, many of which are based on particular and proprietary software, can be retrieved in 20 years time. On the other hand, digital documentation offers many new and attractive opportunities for access.[31] Documentation

[28] Cf. www.inside-installations.org/research/index.php [accessed 26 April 2010]

[29] Cf. LeBlanc, F. and Eppich, R. 2005. 'Documenting our past for the future', The Getty Conservation Institute Newsletter 20, p. 8.

[30] Witthaut, D. 2004. 'Digitalisierung und Erhalt von Digitalisaten in deutschen Museen', in www.langzeitarchivierung.de/publikationen/expertisen/expertisen.htm [accessed 26 April 2010]

[31] http://mac.mellon.org/issues-in-conservation-documentation [accessed 26 April 2010]



❹ The *Inside Installations* Documentation Model (2IDM): the Data Model Map provides an overview of all basic elements.

B-7 Add Technical Information guided by Checklists

Create Structure for Material & Technique Module

To record information the user has to select a document category first (e.g. Technical Description, Analysis Report, Interview...).

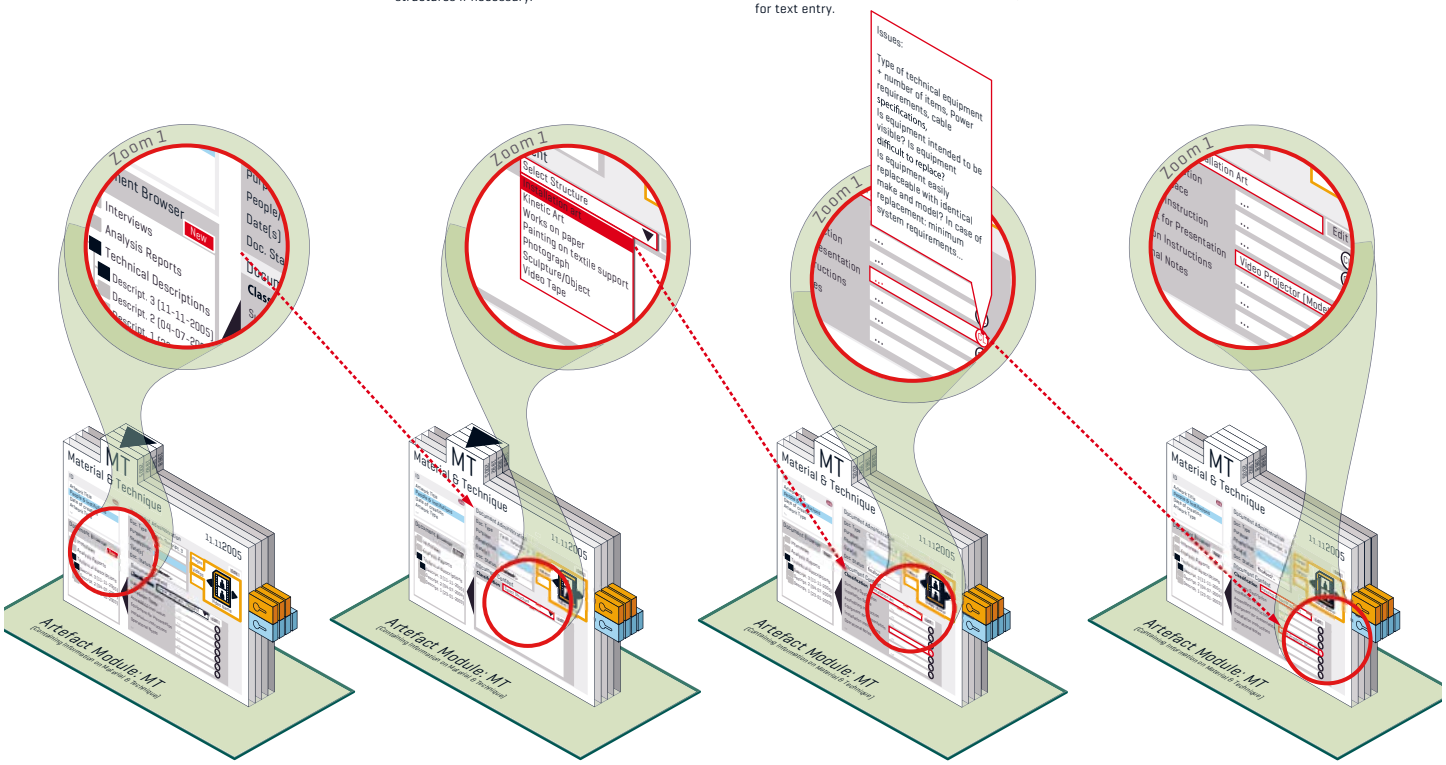
Subsequently the user has to select a pre designed structure for data entry, which is organised according to object type (e.g. Installation art, Painting, Sculpture...). There is also the possibility to create specific structures if necessary.

Checklist Display

In addition to the proposed structure each text field is also combined with a specific checklist. The checklist provides guidance as to what is appropriate or essential to record. Checklists can be used as they are or modified according to need; they may be displayed as long as the user is adding information. Each text field is unlimited and may be enlarged for text entry.

Guided Input added to MT Document

If the user has confirmed his/her input, the checklist will disappear, but can be re-displaye



Concept: Gunnar Heydenreich, Martina Pfenninger, Ulrike Baumgart, Reinhard Bek, Maike Grün, Ulrich Lang, Barbara Sommermeyer, Thomas Zirlewagen Map Design: ort schwankl gbr – Markus Ort, Andreas Schwankl May 2007

❺ The *Inside Installations* Documentation Model (2IDM): Recording of technical information guided by checklists.

serves not only to preserve but also to disseminate and may raise awareness for contemporary art and problems related to its conservation. Within the last years, more and more museums present documentation, including conservation records, on their websites. But what are the primary issues that must be taken into consideration in terms of policy, ethics and resources? Some museums take the view that documentation is largely publicly funded and it is the museums duty to make it available freely.[32] In England, the Freedom of Information Act[33] has changed the position profoundly. Also, with changes in the nature of publishing the act of posting data on the museum website forms publications in its own right. Documentation can provide material that can be also used for educational purposes and promotion. However, concerns have been expressed about the use of unpublished work and some sensitive information will have to be restricted. Most museums agree that no unmediated Internet-based access to conservation records should be given and this may even be more complicated with contemporary art as issues of copyright and agreements with artists have to be considered.

In 1999 a successful interim solution was found within the framework of the International Network for the Conservation of Contemporary Art / INCCA.[34] The artists archive houses metadata on unpublished research on contemporary artists from INCCA members, including project descriptions, analytical reports, student theses, and interview transcripts accessible to members only. Time-consuming creation of such metadata documents may possibly be improved in future if these can be generated from management systems in which such information is collected anyway.

Perspectives and conclusion

Much has been achieved to improve documentation within the last decade; however there are also many challenges. Documentation procedures need to be further improved by networking the various initiatives and by further developing models, standards and tools, dedicating additional resources, and increasing training efforts. More recently within the context of an international initiative the Andrew W. Mellon Foundation has tested various possibilities to develop new instruments to document and disseminate art historical, conservation and scientific information.[35]

The recent projects CollectionSpace[36], ConservationSpace[37] and ResearchSpace[38] provide attractive perspectives for developing museum and conservation documentation based on open-source technology.

One future exists without doubt in the cooperation between artists and museum professionals. Many artists are keen to document and visualize their own works and they are increasingly using the Internet for their own means of data processing and publication.[39] The Internet has an enormous potential as a platform for archival information, allowing a variety of presentations. Museums can support websites managed by artists and assist in securing them long-term. A prospect lies in the combination of decentralized and centralized data storage. We are still the first generation using the power of the Internet and large-scale databases to make some sort of communal archive where costs of data upgrading and maintenance can be shared. The future development of the Internet will without doubt influence museum documentation

[32] Cf. http://mac.mellon.org/issues-in-conservation-documentation/2006_new_york_dossier.pdf (accessed 26 April 2010), p.14.

[33] www.opsi.gov.uk/acts/acts2000/ukpga_20000036_en_1 (accessed 26 April 2010)

[34] www.incca.org/ (accessed 26 April 2010)

[35] http://mac.mellon.org/issues-in-conservation-documentation (accessed 26 April 2010)

[36] www.collectionspace.org (accessed 26 April 2010)

[37] www.conservationspace.org (accessed 26 April 2010)

[38] www.researchspace.org (accessed 26 April 2010)

[39] See for example: www.jeffrey-shaw.net; www.ulrike-rosenbach.de/ or www.cremaster.net (accessed 26 April 2010)

enabling productive and flexible cross linking not only with the content of the archival material but also between institutions.
The question of how to structure museum documentation in the twenty-first century is dependent on the museum's self-conception with regards the development of new media and how museums will assess the duties of collecting, preserving, research and mediation in the future. Museums in the twenty-first century are in a position to play a role as mediators in major global transformations and to address the urgent need for safeguarding cultural diversity with particular focus on preservation and mediation of tangible and intangible cultural heritage. It's the museums' challenge to facilitate the public's knowledge, understanding and appreciation of art. Documentation can contribute to preventing their neglect or destruction.

Visualization and Documentation of Installation Art

Ulrike Baumgart

Abstract
The visualization and documentation of complex installations within a given space has to date depended on recordings produced with the aid of a number of photographs and/or video. This chapter investigates the potential for spherical panoramic photography as a tool for the visualization and documentation of complex installation views to sustain a base for the scholarly examination and analysis of the different process of changes. Further application options as linked content and the use of it is demonstrated by the visualization of the *Beuys Raum*, Neue Galerie Kassel as well as the possibilities for integrating sound and video files, such as in the case of the documentation of Peter Bogers' work, *Heaven*.

A distinguishing feature of installation art is that it conveys entire complex compositions to a space. Conceiving of the space as the 'canvas', as a component of the installation itself, and integrating it into the intended artistic context, is something that has been explored by Beuys and Robert Morris, among others. The positioning of the individual 'works of art' within the space, as well as the 'sculptural objects' in relationship to one another, is of particular importance.
At the start of the 1970s, artists such as Paul Thek began developing installations that were not only of a spatial but also a processual, situational and performative character, and whose complexity and intricacy were difficult to capture. Various aspects of sensitization through movement, sound, and smell, the staging of areas of light and shadow, and fluid transitions between time and space within these installations created for the moment – all of these were part of the artistic intention and aimed at the individual associative perception of the viewer. Today, these installations can only be communicated through the few surviving videos or photographs documenting these works; the overall context of the installation, specific relations between their components and art-historical references can only be imparted as isolated aspects.
The scholarly evaluation of the installations per se – including the various components which influence the installation and/or the active person in their respective form of presentation, such as spatial reference, situational, performative or process-related aspects –can only be determined, examined and analysed with precise documentation comprising all aspects wherever possible. Comparative study using the documentation that has been carried out forms the basis for comprehensive scholarly examination; high-resolution documentation that is as neutral as possible allows subsequent generations, as well, to explore the complex structure and the arrangement of the individual parts within the framework of the installation and within the space with

regard to other, perhaps novel and enhanced, aspects.[1]
This requires a complex, and if possible complete, documentation of the different forms of presentation utilized by the artist, with all of the architectural spatial and light components, as well as the additional recording of all individual parts of the artwork (in situ wherever possible) or topoi.[2] For these are to be considered as the basis for an analysis of the processes of change pertaining to the overall appearance of the presentation form or the individual components of the work.
Another aspect of the required complex documentation of each form of presentation is the posthumous reinstallation, something that, in the absence of precise documentation on which it can be founded, must be regarded more as a 're-staging' and, depending on the people involved, may reveal contexts not intended by the artist. However, the terms themselves demand a more precise definition. In this regard, a complex documentation that encompasses all aspects and facets of the installation can be viewed both as a strategy to preserve the 'immaterial' artistic intention and as the foundation for future presentation strategies.
In years past, photography and film were the only media available for the visual documentation of complex spatial installations. Yet the dawn of the digitization age has unleashed a host of technological possibilities and methods for documentation in the visual realm, marking the start of a new development process. The range of these possibilities and their information content in regard to the requirements for creating a complex documentation of an installation have been examined based on the recording of various types of installations. Since the possibilities offered by CAD and 3D cover only some aspects of the documentation and do not contain an authentic visualization, these methods were not considered.[3] The possibilities and advantages of video documentation lie in its ability to capture sound and motion simultaneously. 'Wandering through' the installation with the camera running appears to offer the most authentic reflection of a viewer's perception. But this method continues to suffer from the disadvantage that its resolution remains far inferior to that provided by spherical view high-resolution images. Moreover, the viewpoint determined and manipulated by the course of the camera does not allow associative lingering or taking a closer look at details. It is not possible to freely choose positions within the space, angles and perspectives, so that a scholarly evaluation at a later date is only possible for certain aspects.
All this can be offered by a high-resolution (full) spherical still image (subsequently called 'spherical view').[4] One of the advantages of documentation using spherical view is its complex rendering of spatial situations from the position of the camera along 360° horizontal and 180° vertical axes, allowing the spatial shell and architectural factors as well as all parts of the installation to be captured in their entirety. In spite of the 'apparent' complexity of this recording method, it is necessary, as with all documentation methods, to work out a recording structure that is appropriate for the installation in question. When elaborating a recording structure it is necessary that it be based on the interpretation of the artwork, the analysis of the artistic intention and on all eventualities pertaining to a process of change. The

1 The academic study of art installations was previously undertaken based on individual photographs, videos, drawings, models, installation manuals and interviews with those involved, whereby some of these resources are to be seen as subjective.

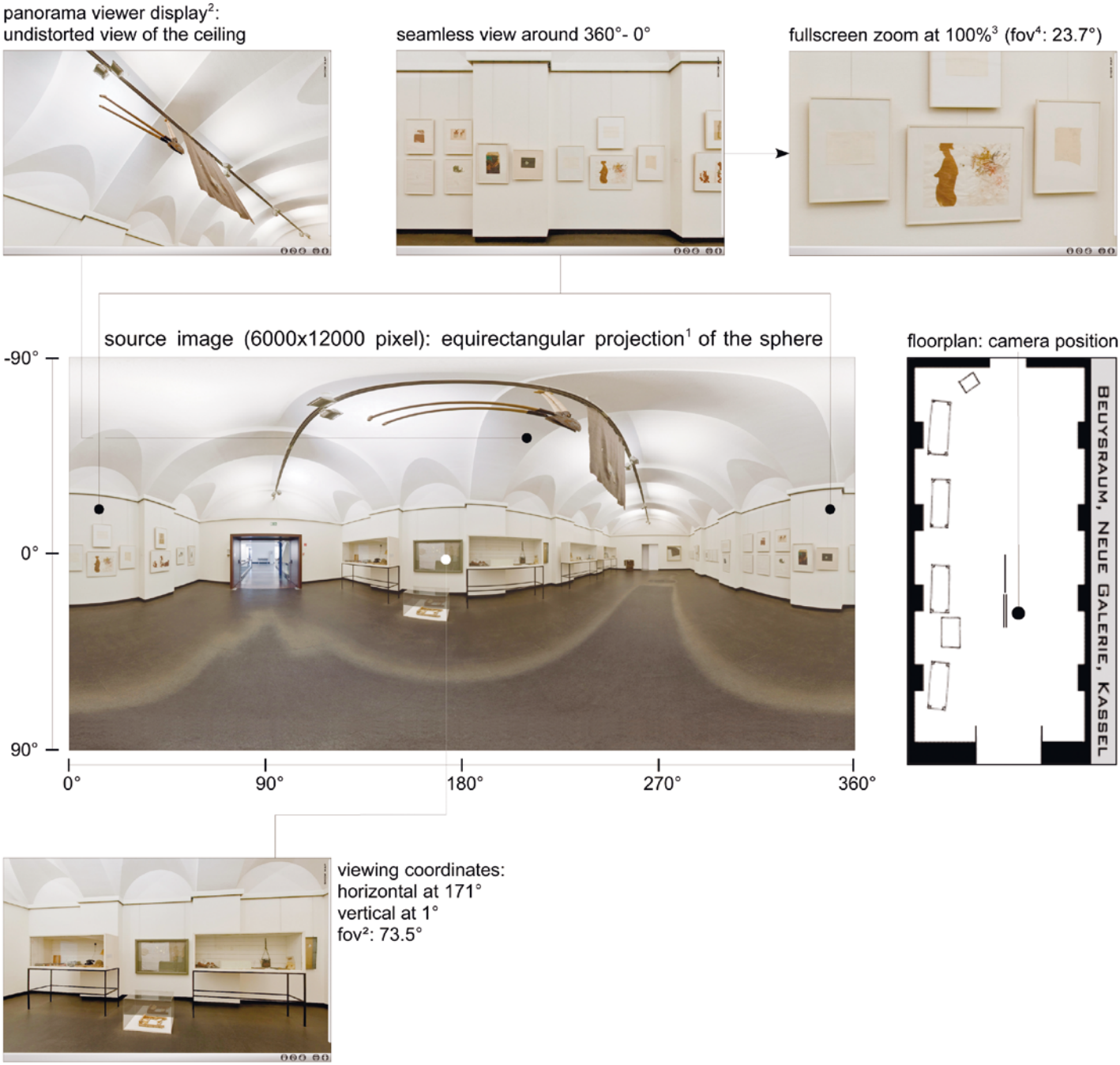
2 Definition of topoi: an agglomeration of individual parts with a specific, artistic meaning inside the installation.

3 CAD = Computer Aided Design. This method enables artificially generating a room installation with the related components. This method is incommensurable to a documentation of an existing installation by taking a high-resolution spherical photograph.

4 For more information about the panoramic photography technology and processing, cf.: 'What's the meaning of VR photography / VR panoramas?'; www.inside-installations.org/research/detail.php?r_id=488&ct=3d_registration, (accessed 27 October 2010 (pdf download) and www.art-documentation.com (accessed 5 November 2010)

various camera positions within the space must be determined and examined with regard to the installation, its components and their positioning in relation to each other and within the space. This process involves determining and marking the various vantage points of the camera and the corresponding number of vantage points in accordance with the 'installation density' and the topoi. When selecting the vantage points, the focus should be on locations providing a 'frontal' perspective on the individual components or topoi wherever possible. The decision regarding the recording height is a key component of any complex visualization. A viewer's perception can be achieved with a recording height of 1.70 metres, while a recording height of 3.20 metres or higher allows giving the necessary overview of the installation and, as a result of the reduced distance to the ceiling, documenting important facts concerning the spatial shell in higher resolution, and thus in greater detail. Visualization using a top view makes it possible to provide additional information on the positioning of the individual components, as well as a more differentiated view of the structure of the installation or the various topoi that have been created. Overlapping perspectives of individual parts of the artwork within the installation can be corrected using a recording height that has been modified accordingly.
As a result of the high resolution of the individual digital images, observing a spherical view makes it possible to 'move' through the space from each selected vantage point; the ability to zoom in and out enables one to take a more detailed look ❶. Changes of perspective and location are made possible by the different recording heights and camera vantage points. Switching between locations and the various recording heights is enabled by clicking on the locations designated on the room plan. This plan serves as orientation during the 'movement' of the viewer within the space, and provides a graphic representation of both the selected direction and current viewing angle on the architectural plan. The room plan with the designated locations can be hidden if desired ❷. As a result of the high resolution and 'freely selected' viewing angles within the space from a variety of heights, this method of visualization allows for the scholarly analysis and examination of the installation. However, the camera's vantage points must be chosen with great precision.
When evaluating the information content of the documentation created using spherical view, very dense installations or extremely intricate surfaces or constructions of individual parts of the artwork give rise to a need for the ability to view items within the panorama in greater precision, without having to fall back on the photo database containing the corresponding individual shots.

Setting 'hotspots' within predefined picture areas inside the panorama makes it possible to provide links to far more detailed information. Hotspots are interactive points/areas that can be clicked on. They serve as links to other data that can take most any form, such as image files, audio files, text files, or video files ❸.
The expansion of visualization that these options enable was used to record the *Beuys Raum [Beuys Room]* installation at the Neue Galerie in Kassel on



[1] equirectangular projection (also called geographical projection) is a method of representing the surface of a sphere on a plane

[2] A panorama viewer is a software to display an undistorted view of (from?/at?) the spherical image. It's possible to interact with the image, that is to pan the view horizontal and vertical. Also one can zoom in the image to enlarge the details.

[3] zoom at 100%: 1 image pixel meets 1 monitor/screen pixel

[4] fov: field of view

❶ Spherical source image and panorama viewer display. Installation view: *Beuysraum*. Neue Galerie, Kassel, 2006. COPYRIGHT Ulrike Baumgart, Lutz Schmidt, art-documentation.com / COPYRIGHT VG BILD-KUNST, Bonn.

❷ Panorama viewer and user interface. Installation view: *Beuysraum*. Neue Galerie, Kassel, 2006. COPYRIGHT Ulrike Baumgart, Lutz Schmidt, art-documentation.com / COPYRIGHT VG BILD-KUNST, Bonn.

account of the specific surface characteristics of the installation's individual objects and architectural components.

The *Beuys Raum* was created by Joseph Beuys in 1976 using selected works from the Herbig Collection, and has existed almost unchanged ever since. The selection of the room, as well as partial changes that were undertaken – the original floor covering (carpet) was replaced with industrial flooring – were determined by Joseph Beuys for this specific installation. All of the artworks of the room were positioned by Beuys, both with regard to their relationship to one another and the architectural conditions; the indirect lighting within the room is part of the artistic intention. By his positioning of the objects *(2 x Spaten mit 2 Stielen [2 x spades with 2 handles]*; *Das Schweigen von Marcel Duchamp wird überbewertet [The Silence of Marcel Duchamp is Overrated]*; *Filzanzug [Felt suit]*) along the horizontal central axis and lighting rail, Beuys succeeded in breaking through the exhibition area originally provided by the museum, integrating the room – including its ceiling area – into the complex *Gesamtkunstwerk*. The sequence and positioning of the four vitrines is determined by the architecturally visual pillars supporting the vaulted ceiling. In relationship to the room and the assembly necessary for positioning within the room, individual objects of the installation were altered. One of these numerous changes was the addition of eyelets to the upper edge of *Das Schweigen von Marcel Duchamp wird überbewertet* in order to present it hanging freely from the lighting rail within the room. Earlier presentations show this object as a wall hanging.[5]

The documentation strategy encompassed the documentation and visualization of the spatial shell with all of its architectural characteristics, the different atmospheres in the room (e.g. light and the lighting scheme) and all of the room's components and their elements.

The extremely complex recording of the Beuys Raum at the Neue Galerie in Kassel involved capturing the room and all of its components (with the exception of the *Filzanzug* and *Das Rudel [The Pack]*[6]) from nine different camera vantage points and two recording heights (1.70 m and 3.20 m). As a result of its use for documenta 12 in 2006 and the subsequent renovation of the Neue Galerie building in Kassel, the room was emptied and the installation components were placed into storage. In addition to the taken spherical view images, all of the objects found in the room were also photographed individually in situ. In order to visualize the spatial shell itself, the positioning of the vitrines and the individual parts of the installation, points in the room's four corners were also chosen to serve as camera vantage points (see the floor plan in ❷). Each of the vitrines were recorded individually, and all of the objects within the vitrines were photographed individually in situ. By linking the individual objects to additional photographic data (using hotspots), it is possible to access, for example, an overall view and various detailed views of the object (taken in situ). The various data stored in this way can be accessed using a pull-down menu that is integrated into the control panel along the bottom edge ❸. Surveying and mapping as well as the description of the individual artworks are also linked and directly accessible via a pull-down menu.

This form of visualization allows quick access to important detailed information on the objects within the room. Thanks to the opportunity this provides

[5] Cf.: *Bilder Objekte Filme Konzepte [Pictures Objects Films Concepts]*, Catalogue: Städtische Galerie im Lenbachhaus, 1973; pp. 12-13.

[6] Joseph Beuys' *Das Rudel* was on loan to the Tate Modern in London at this time. The *Filzanzug* was not a constituent of this room at the time for reasons of conservation.

for viewing the installation from multiple vantage points within the room, along with associative and targeted linking to more detailed information, it is possible to more closely observe and respond to individual objects. As a result, using the panorama to view the object provides more information (in some respects) than does on-site observation.[7]
Hence, even four years after the room was emptied, there is still a legitimate basis for discussing existential questions pertaining to the renovation of the room and its effects on the overall appearance of the complex installation, including any changes to its context these might entail.

Other possibilities for visualization in the form of an 'installation manual' were examined on the basis of Mario Merz' *Isola* installation from 1982 at the Neue Galerie in Kassel. This involved recording the installation in this presentation form and in various phases of dismantling from a recording height of 3.20 metres. By fading over the various phases of the 'de-installation' process, it is possible to examine the positioning of its individual parts for the 're-installation'. One can switch between the individual versions for any segment of the panorama desired. This form of documentation enables the highly complex installation set-up to be structured via an overall view of the different stages ❹.[8] Complex sculptural artworks like Mario Merz' *Isola* may be also documented by 'object VR'.[9]
Movement and sound cannot be captured by documentation using spherical view alone. Therefore, methods for filling this gap by linking to saved audio and/or video files were also examined.[10]
Peter Bogers' installation *Heaven* from 1995 as presented at the Kunstverein Stuttgart in 2007 was documented as one of many examples.[11] *Heaven* is a spatial installation consisting of 17 monitors. The videos show incidental events recorded in a private interior: a spoon being stirred in a coffee cup, a curtain blowing or a temple pulsating. We only see one second of each of these actions, playing forwards and backwards, again and again. In one video (in colour on a black monitor), the outer world breaks into the seemingly private atmosphere. This video shows a scene filmed from television of an interior collapsing during the earthquake in Kobe; the sound overlies the background noise from the other video takes.
The installation is characterized by an extremely minimalistic monitor set-up, as well as the acoustics of the individual video recordings and sequences which the spectator can see. Not all of the audio tracks of the individual video sequences are played at the same time; instead, only three or four of these start, then fade out, to be replaced by those from other video sequences. In the same manner, the monitors are positioned within the room so that only three or four video sequences can be viewed at any one time, depending on the position of the observer in the room.
The viewer's perception of the installation works at a number of levels:
— Perception of the changing acoustic sound sequence, which (at first glance) cannot be immediately attributed to the visible video sequences.

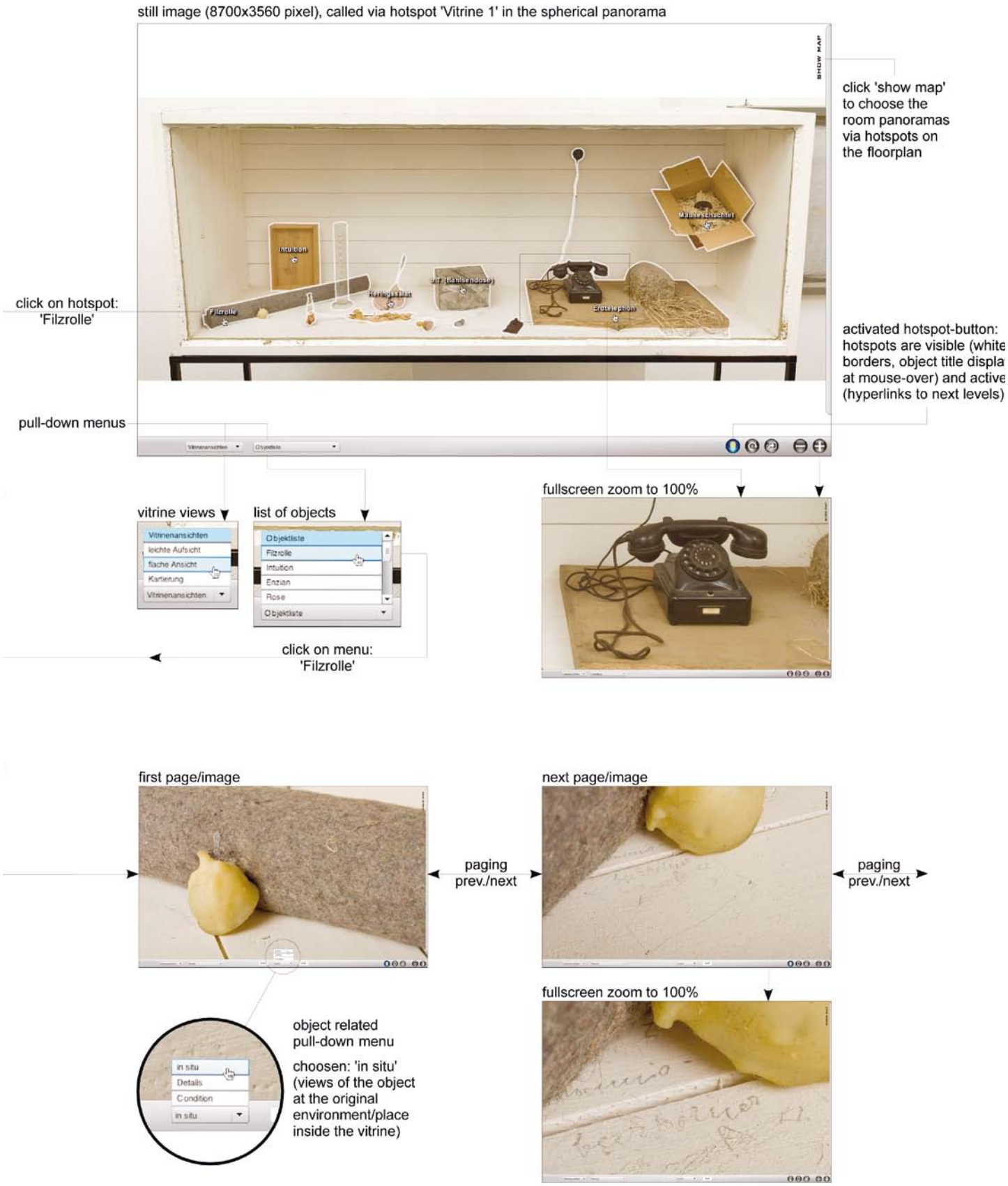
7 The *Beuys Raum* panorama that was created was also shown at the symposium *Contemporary Art, Who Cares?* in Amsterdam in 2010 as part of the Visualization' workshop. www.incca.org/cawc-programme/day-3/677-documentation-and-visualisation (accessed 15 November 2010).

8 The panoramas have been made available at: www.inside-installations.org (accessed 5 November 2010).

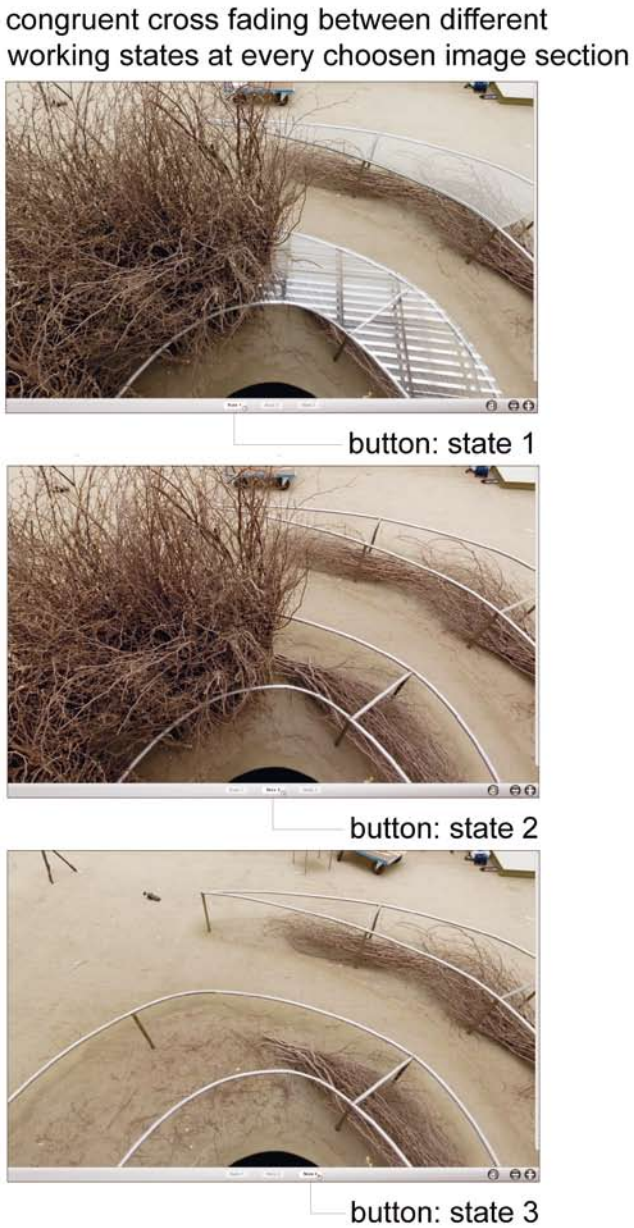
9 Scott Highton, Virtual Reality Photography, pp. 191-207, www.vrphotography.com/bookpromo.html (accessed 27 October 2010). 'Virtual Reality photography is not limited only to the creation of panoramic images. Interactive object movies- or image sequences shot of an object from many different angles- are another key element of VR imaging. These sequences, when presented in an interactive viewer, allow the viewer to "virtually" rotate an object and view it from any angle', Scott Highton.

10 See more examples at: www.art-documentation.com (accessed 5 November 2010).

11 Solo exhibition: *Play-Rev-Play*, Kunstverein Stuttgart 2006–2007.



❸ Hotspots and linked content. Installation view: *Beuysraum*. Neue Galerie, Kassel, 2006. COPYRIGHT Ulrike Baumgart, Lutz Schmidt, art-documentation.com / COPYRIGHT VG BILD-KUNST, Bonn.



❹ Cross-fading in panorama viewer display. De-installation view: Mario Merz, *Isola*, Neue Galerie, Kassel, 2005 COPYRIGHT Ulrike Baumgart, Lutz Schmidt, art-documentation.com / COPYRIGHT VG BILD-KUNST, Bonn.

— Perception of the visible video sequences and assignment of the acoustics being heard, as well as the perception of the complex installation through the movement of the viewer within the room. The overall impression was documented by three panoramic shots from different positions in the room. The monitors were interlinked with the sound sequence specific to each. The sound can be switched on and off using the loudspeaker symbol. In order to simulate the viewer's perception as precisely as possible and to convey to the user both the acoustic and visual impressions after dismantling the installation, the respective monitors were linked to the running sound sequence in such a way that the monitor selected in the middle of the image overlays the background noise; a swelling and fading of the sound sequence is conveyed through movement within the panorama. The video sequences documented in the panoramic photographs as film stills are also interlinked with the individual monitors and appear in a separate window. Another option is to place the video files – including sound files – in a separate room plan. This permits an overview of the positioning of the individual videos within the room and documents any changes within the sequence compared with the subsequent presentation forms ❺ ❻.

The appearance of the installation in Stuttgart was characterized by the austere character of the room. The suspension and cabling of the monitors created lines that were rich in contrast within the room and along the ceiling. As a result of the marble floor and bare, white-painted walls, the acoustics were clear, almost jangly. In another presentation in 2009, Peter Bogers set up the installation in an historical room with silk tapestries, parquet flooring, hearth-mirror ensemble, stucco ceiling, and crystal chandelier in the Huize Frankendael[12], an historical building in Amsterdam. As a result of the architectural circumstances and historical nature of the room, there were but limited possibilities for suspending the monitors from the ceiling, so the form of presentation was changed to suit the characteristics of the room.

It was possible to position the monitors located on the wall above the existing picture rails, whereby the type of suspension was changed slightly. The monitors within the room were placed on frames fashioned from square tubing especially for this purpose; the height and inclination of each monitor was the same as for the installation in Stuttgart. Cables for each monitor were run along the floor ❼.

The perception of the installation within the context of this historical room, a more private space, is different from when the installation is presented in a cool, austere room. Due to the fact that the presentation form in Amsterdam in 2009 was only documented photographically, it does not contain detailed information on the location of technical components, room acoustics and so on.[13] Precisely recording the form of presentation in Stuttgart and comparing this with the form of installation in Amsterdam in 2009 make it possible to at least document the scope of possibilities for change vis-à-vis the room and type of set-up and the effects on the context.

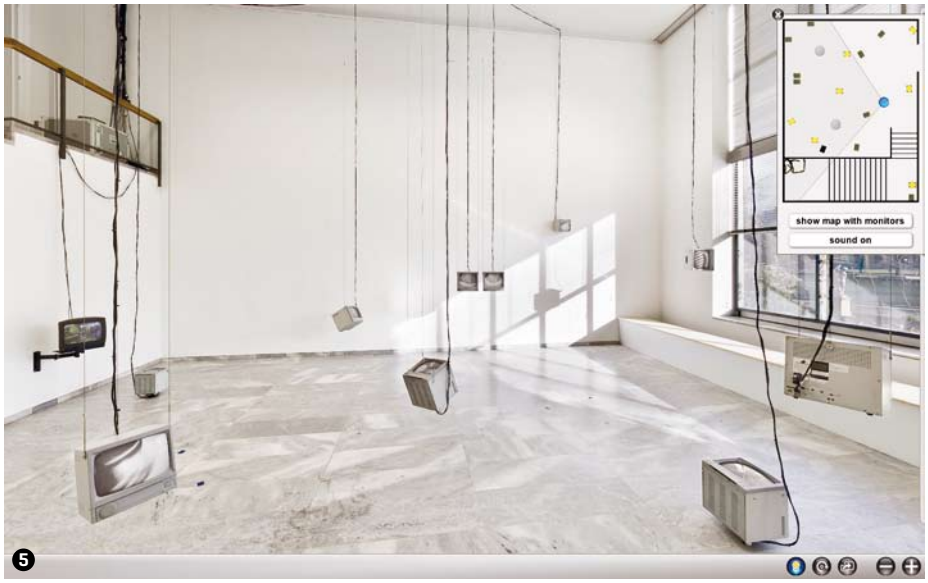
One factor which makes it even more difficult to document and allocate the change processes of installations is the fact that many artists can determine whether a particular installation is to be seen as an ongoing or finished artwork only after a certain period of time. In many cases, a number of aspects

[12] Group exhibition; *The Living*, Huize Frankendael, Amsterdam, 2009, source: www.peterbogers.com (accessed 5 November 2010).

[13] Regarding Jason Rhoades' installation: *Reaction Man Tchecho-Kit, Great Sea Battles of Jason Wilhelm Schürmann*, the book entitled *Help Manual* contains a reference 'This work is not finished and I am not convinced that it ever will be'. In the first presentation form at the Deichtorhallen in Hamburg, Jason Rhoades presented an almost exact creation of the installation already sketched in the book: on nine glass tables, he spread out a vast amount of utensils with a direct connection to the collector and the artist and his environment. Jason Rhoades's vision of further ways of presenting this installation was displayed as a drawing above the model of the exhibited version. Entitled 'Proposed – The Love Boat', the drawing depicts a boat-like foundation upon which – with the help of a number of tables, some placed on top of others – a steamer-like silhouette is drawn with all the components of the installation as well as relevant art historical references. As it happens, Jason Rhoades changed the appearance and context of the installation in the next presentation, held at Ludwig Forum in Aachen, 1994; pushing the installation together to form a compact, emerging structure. The palms – a reference to Los Angeles and, in turn to himself and the Getty Museum – were

or possibly changes (situational, related to the space) remain unclear until the installation has been presented by the artist on numerous occasions. With installations whose creation is the result of a process, complex documentation using spherical view – with the comprehensive documentation of the various forms of presentation – may offer one possibility to 'posthumously' reconstruct the various versions, and thus to retain the process-related aspect intended by the artist. This is presuming that the process-related aspect is based on the appearance and the corresponding newly defined context (for example: Jason Rhoades' *Reaction Man Tchecho-Kit*, 1994) and not on an irreversible process of change involving the individual parts of the installation.

placed above the installation like a motor. In the first presentation form, the palms had been positioned almost sculpture-like in front of the installation room. The artist's third presentation form was attributable to the curatorial aspect. Mathias Winzen, curator of the exhibition *Deep Storage* invited the artist to present this version in the context of the exhibition. Jason Rhoades simplified the presentation form and as a reference to the cabinets that he used as table legs for the glass tops he reproduced one of these in oversized form. All components of the installation were numbered and positioned within the cabinet. The installation was shown in this form till 2007. See: Meyer-Hermann, E. 2009. *Jason Rhoades*, Cologne: DuMont Buchverlag. For further reading: Thomas Bredenfeld. 2010. *Das Praxisbuch Digitale Panoramafotografie*, Bonn: Galileo Press, www.panoramabuch.com (accessed 5 November 2010). Scott Highton. 2010. Virtual Reality Photography Book, www.vrphotography.com (accessed 5 November 2010)



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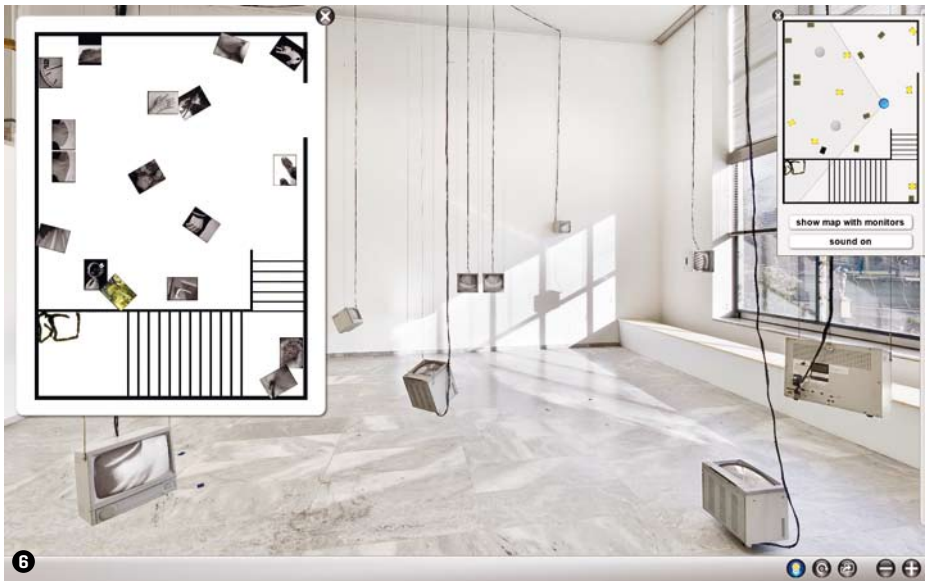

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❺ Peter Bogers, *Heaven*, Presentation Wuerttembergischer Kunstverein Stuttgart, 2006-2007 COPYRIGHT Ulrike Baumgart, Lutz Schmidt, art-documentation.com / COPYRIGHT Peter Bogers. ❻ Peter Bogers, *Heaven*, Presentation Wuerttembergischer Kunstverein Stuttgart, 2006-2007 COPYRIGHT Ulrike Baumgart, Lutz Schmidt, art-documentation.com / COPYRIGHT Peter Bogers. ❼ Peter Bogers, *Heaven*, installation view, Huize Frankendael, Amsterdam, 2009 COPYRIGHT Jan van Esch / COPYRIGHT Peter Bogers.

Coordinates and Plans: Geodetic Measurement of Room Installations.

METHODS AND EXPERIENCE GAINED AT THE PINAKOTHEK DER MODERNE, MUNICH

Maike Grün

Abstract

This chapter describes geodetic surveying methods that can be adapted for documenting installation art. Since 2002, installation artworks in the Sammlung Moderne Kunst (Collection of Modern Art) at the Pinakothek der Moderne in Munich have been geodetically surveyed using various methods that include tacheometry, photogrammetry and laser scanning. This has resulted in a number of documents such as floor plans and different views of the particular installation artwork. The primary objective of these measurements is to obtain spatial documentation of the artwork. The survey plans can also be used as an accurate basis for reinstallation. The chapter begins with a historical introduction to this topic, demonstrating that geodetic methods have a long tradition in surveying cultural assets and have become established practice in modern archaeology. This is followed by a description and a comparison of the surveying methods used for installation art. Surveying is described from a practical point of view using the environment *Doppelgarage* by Thomas Hirschhorn.

Introduction

The advent of room installations is relatively recent in museum collections, and is thus associated with a new stylistic tool for artistic expression: spatial arrangement. Installation artworks as well as environments and multi-part sculptures usually consist of several objects.[1] Their spatial arrangement has a decisive influence on the effect and the significance of the artwork. Artists seldom relinquish control of such an arrangement and it is thus an integral part of their creative work.

Plans obtained from geodetic measurements have the advantage that they are true to scale and thus provide millimetre-precise information on the three-dimensional details. This allows professional spatial documentation that is of great importance for the history of the artwork. Photographs and sketches can never achieve such accuracy, thus leaving room for interpretation. Geodetic survey plans can be used as the basis for reinstallation – if desired. For many artists, it is important that their work can be changed. The presence of the artist during reinstallation also plays a role.

The topic of surveying was investigated in more detail in a special study within the EU project, *Inside Installations* (2004-2007). In her article on the funda-

[1] For the sake of simplicity, these three types of artworks are grouped together and referred to as 'room installations' or 'installations' in this chapter.

mentals of surveying, Alexandra Czarnecki described a number of geodetic methods and instruments that are particularly suitable for measuring multi-part artworks (Czarnecki 2007). In addition, the author explained the measurement of various artworks by the artists Joseph Beuys, Pipilotti Rist, Mark Manders, Fred Sandback, Thomas Hirschhorn and Olaf Metzel (Grün 2007).

Geodesy and cultural assets

Geodesy (Greek = measurement of the Earth and land) is the science of measuring the topology and size of the Earth or parts of its surface.[2] The historical roots of geodesy go back to measurements of fields in ancient advanced civilizations. The art of land surveying and geometry was developed in ancient Egypt several thousands of years B.C. because after the Nile floods had subsided each year, the fields and meadows were covered with a layer of fertile mud and thus had to be resurveyed and recalculated so that they could be reallocated (Stillfried 2009, p. 108). Land surveying was also very important in pyramid construction. The tomb of the pharaoh Cheops (around 2500 B.C.) is built of more than two million stone blocks. It covers an area of about 53,000 square metres – or nine football pitches – and with a height of 146 metres, it is higher than a fifty-storey skyscraper. Remeasurement using modern surveying instruments showed that the Egyptian land surveyors had been very accurate in laying out the Cheops pyramid (ibid., p. 158), in spite of their equipment, which might seem rather simple today, for example, a measuring rope that was divided into equal sections with knots. The four sides of the pyramid's base deviate by less than ten centimetres from their intended dimensions (ibid., p. 159).

During the systematic land surveys that began in the post-medieval era, land surveying techniques were used to document objects of cultural heritage and were initially used to measure archaeological sites. In Bavaria, for example, this took place in the second half of the eighteenth century and can be explained by the interest in Roman antiquities that had been reawakened by the discovery of the buried villages on the slopes of Mount Vesuvius (Wamser 2006, p. 4). This prompted the all-round scholar Johann von Linbrunn to carry out a topographical archaeological land survey of the *Römerschanze* (Roman earthworks) at Grünwald near Munich in 1763. His layout plans represent the start of topographic surveying of archaeological monuments in Bavaria (ibid., p. 11).

Geodetic surveying techniques are now an integral part of modern archaeology. Archaeological excavation sites may need to be surveyed and documented quickly and efficiently because excavators are often standing at the ready to excavate the foundations for a new building, which would destroy the site forever. In principle, the documentation of archaeological excavation sites has the same requirements as those of a modern art installation: three-dimensional documentation of numerous objects and features. Nowadays, this is carried out using modern measuring techniques such as tacheometry, photogrammetry and laser scanning, as well as tried and trusted instruments such as a trigomat, a pantograph and a measuring grid (Wanke 2005). The latter instruments are, however, too specialized with respect to their use in archaeological excavations because they can only be used to document flat

[2] Keyword 'Geodesy', article in *Meyers großes Universallexikon 1982*, p. 494 f.

layouts, such as the position of bones in graves.[3] In contrast, room installations usually present large differences in height so that these methods are rarely used for such applications (Czarnecki 2007, p. 23ff).

[3] Furthermore, the trigomat and the pantograph have a very limited range.

[4] See Figures 13 and 14 in Grün 2007, p. 11.

Methods and instruments used at the Pinakothek der Moderne

Room installations at the Pinakothek der Moderne are generally measured using three techniques: tacheometry, laser scanning and photogrammetry.

Tacheometry

The word 'tacheometry' derives from the Greek language and means 'quick measurement'. It is a geodetic method that is used to measure the Earth and land by determining angles and distances in order to specify the coordinates of a point within a three-dimensional space. The instrument used for this is a tacheometer ❶, also known as a 'total station'. It comprises a theodolite, which is a telescope through which the surveyor can aim at the desired point, and an angle gauge. It also has a device for measuring distances that uses a laser beam or infrared light. An electronic tacheometer is equipped with a data processing unit that automatically calculates the respective coordinates from the measured angles and distances.

Tacheometers have been used since the 1970s for archaeological excavations and in engineering geodesy. The latter is used during construction of roads and buildings to transfer measurements from the plans to the site (Petrahn 2000, p. 141, p. 202ff).

Laser scanning

Similar to a tacheometer, a 3D laser scanner ❷ registers point coordinates on the surfaces of the objects by measuring horizontal and vertical angles as well as distances. In contrast to tacheometry, this measurement is carried out automatically. This creates 'point clouds' that map the surface of the measured object. The relevant points from this large number of measured points are determined during editing on the computer so that they can be processed further to create the plans.

Terrestrial laser scanners have been used in geodesy for more than ten years. Their speciality is measurement of complex geometries and differing curvatures. This makes them especially suitable for measuring daring architectural structures such as the curvaceous tent-shaped roof of the Olympic stadium in Munich. Airborne scanners, used since the 1980s, are mounted on planes to provide aerial photographs of the terrain.

Photogrammetry

As the name already implies, photogrammetry is a method of measuring images. Photographs taken with a measuring camera are rectified on the basis of control points using a special computer programme so that they can be shown true to scale. These control points are previously applied to the object's surface and then measured by tacheometry to provide the basic data for rectifying the scale.[4]

Photogrammetry (Kraus 2004) was developed in the mid-nineteenth century parallel to the emergence of photography. It has been used since the begin-

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❶ Tacheometric measurement used for photogrammetric rectification of the images. PHOTO Bayerische Staatsgemäldesammlungen (Maike Grün), Munich; COPYRIGHT Bayerische Staatsgemäldesammlungen; COPYRIGHT VG Bild-Kunst, Bonn, 2010. ❷ Surveying with a laser scanner. There are two white control balls lying on the floor. PHOTO Bayerische Staatsgemäldesammlungen (Maike Grün), Munich; COPYRIGHT Bayerische Staatsgemäldesammlungen; COPYRIGHT VG Bild-Kunst, Bonn, 2010.

ning of the twentieth century in geodesy. It is typically used to measure planar objects such as facades or archaeological excavation sites. It can also be used for aerial surveying of the terrain; however, it is being increasingly superseded by airborne scanners. Criminologists use photogrammetric plans to describe accidents and to document any skid marks and other evidence.

Comparison of the methods

Each of the aforementioned methods has advantages that depend on the specific requirements of the surveying project.

Tacheometry is particularly useful when only a limited number of constraint points are sufficient to document the artwork precisely. Its main strength lies in the fact that is the only one of the three methods that can project measuring points within a three-dimensional space. This is of great advantage when an installation has to be accurately restaged according to a plan within a short time, as was necessary in the case of the 70-square-metre room installation *The End of the 20th Century* by Joseph Beuys in the Pinakothek der Moderne (Weller 2007, pp. 161-171; Grün 2007, pp. 5-8).

Laser scanning is a recent development and is regarded as a complement to tacheometry. This method is particularly useful for measuring complex geometries whose exact positions are to be entered in a plan.[5] The main difference with respect to tacheometry is that the precise data of the object are not measured using a few representative points selected by the surveyor on site, but by automatic scanning of essentially random points within a grid with a regular spacing (resolution). The measuring time per point is much shorter for laser scanning because each point does not need to be targeted individually. In contrast to tacheometry, the representative points are not selected on site but during subsequent data processing with a computer. However, this method can be disadvantageous when a representative point has to be selected from a point cloud. In many cases, this point cannot be unambiguously identified and a – perhaps arbitrary – interpretation has to be carried out (Czarnecki 2007, p. 18).

Photogrammetry is particularly suitable for accurate topographic mapping of flat surfaces (e.g. walls, facades, ceilings, floors) and also for the documentation of flat or smaller room installations. Visible surfaces can be documented very accurately. However, this procedure reaches its limits with three-dimensional objects and becomes inaccurate (ibid., p. 22). Because the final products are (rectified) photographs, the level of detailing is correspondingly high. However, photography needs good illumination of the motif, which is not always easy to achieve.

Tacheometry and photogrammetry are basic methods used by every surveyor. They produce results quickly and inexpensively. The necessary instruments belong to the standard equipment of every geodesist. In contrast, the procurement costs for a laser scanner and the associated complex data processing system are relatively high, which inevitably affects the total costs of the surveying work.[6] The accuracy of competent surveying using all the methods described here is in the range of plus or minus two to three millimetres.

[5] See the measurement of the installation *Silent Factory* by Mark Manders in: Grün 2007, pp. 19-22.

[6] A rough comparison of the initial outlay for tacheometers and laser scanners with sufficient precision: a tacheometer costs between € 35,000 and € 50,000, a laser scanner costs more than double. Information kindly provided by Dr.-Ing. Wolf Barth, Technische Universität München, Chair of Geodesy, by telephone on 20 July 2010. For further details of the working hours for each of the surveying projects carried out in the Pinakothek der Moderne, see Grün 2007.

Surveying exemplified by the environment *Doppelgarage* by Thomas Hirschhorn[7]

The artwork

In *Doppelgarage*, the Swiss artist Thomas Hirschhorn fitted two walk-in units over an area of approximately 120 square metres with PVC flooring, cardboard wall covering with text sheets, fluorescent lamps and numerous self-made large-scale objects or mundane household utensils such as tools and working gloves. Attached to everything are cut out photos from news magazine reports on international warfare surrounding the events of 11 September 2001. The artwork is composed of almost 400 individual objects.[8]
Doppelgarage was first shown at the Berlin gallery of Arndt & Partner in 2002. The Berlin room arrangements were reconstructed within temporary wooden structures for subsequent staging of the installation in Frankfurtand at the Pinakothek der Moderne. The Munich layout had to be shortened by about one meter due to lack of space. The entrance was also moved to a different wall and an emergency exit was added. The *Doppelgarage* reinstallation in Munich was adapted to the different spatial conditions by Hirschhorn's assistants. The special situation in Munich is discussed in the following description of the surveying process.

Measurement (Weber 2007)

The geodetic measurement project had three aims: the first was to document the precise arrangement of the objects within the environment. The second objective was to draw up plans of the walls in order to be able to fill in details such as the position of the individual cardboard wall coverings or the path of the electricity cables, which had been laid by the artist and his assistants. The third objective was to measure the temporary wooden structure in which *Doppelgarage* had been placed in Munich.
The many different tasks, the complex arrangement and the geometries of Doppelgarage meant that the artwork had to be measured with a combination of laser scanning, photogrammetry and tacheometry.

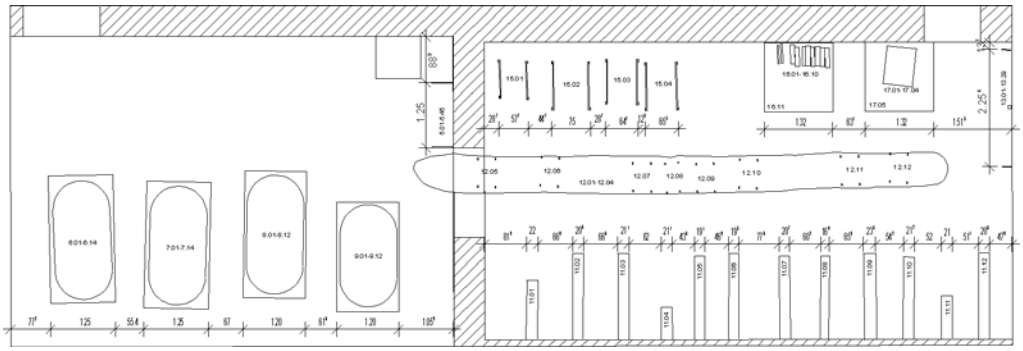
Procedure

In the first step, the laser scanner[9] was used to take 15 recordings of *Doppelgarage* from different angles, paying careful attention to ensure that the laser scanned all the objects. The surveyors distributed seven white control balls ❷ among the individual objects of the artwork. The individual measurements were subsequently aligned using these balls as 'tie points'. Eleven flat scanning targets were also distributed. These were measured with the aid of a tacheometer and then used to install a super-coordinate system that could integrate all of the gathered measuring points.
In the subsequent data processing, the scanner software Cyclone (Version 5.5 SP1) joined up the individual scans to form a point cloud ❺. The programme CloudWorx was used to make the point cloud available to the CAD software with which the plans could be generated ❸.
The walls were documented using photogrammetric methods. As some of the objects assembled in *Doppelgarage* obstructed the view, this work had to be carried out during the dismantling stage of *Doppelgarage* after all the objects

7 Most of this section has been taken from: Grün, p. 23. The measurement work was carried out in March 2005 and February 2006 by the Technische Universität München, Chair of Geodesy, Prof. Thomas Wunderlich, represented by his assistants Dipl.-Ing. Thomas Weber and Dipl.-Ing. Thomas Schäfer.

8 For photographs of *Doppelgarage* and a detailed description of the artwork, see the chapter titled *My work isn't ephemeral, it's precarious*. Discussion of a "conservation" strategy for *Doppelgarage* by Thomas Hirschhorn' further on in this book [see page 221].

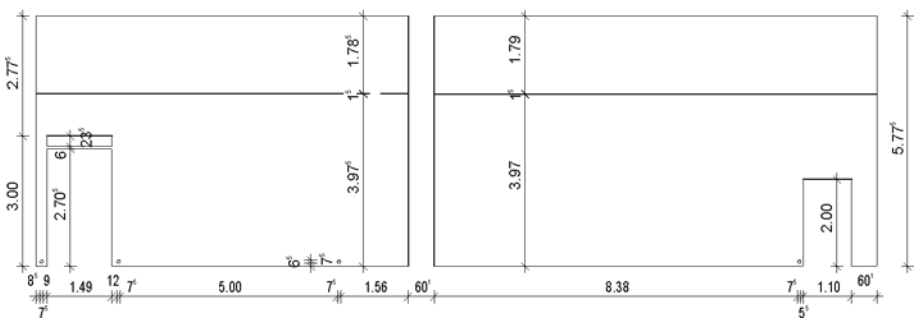
9 Cyrax 2500, Leica. This piece of equipment is a terrestrial mid-range scanner that is mounted on a tripod to provide good contact with the ground. It has a range of at least 1.5 m and a maximum of 100 m, and a resolution down to 1 mm.



❸ Layout plan generated from the point cloud data. PHOTO Technische Universität München, Chair of Geodesy (Thomas Weber) COPYRIGHT Technische Universität München, Chair of Geodesy.

had been removed. The surveyors used a standard digital camera (Canon EOS 300d) to take several photographs of each wall, making sure that the camera and wall were kept equidistant. Following the printout of these partial shots of the wall, they defined on them a minimum of four measuring points – for instance on the i-points of the texts attached to the artwork – and recorded them with the tacheometer ❶. The registered coordinates were then edited to coincide with the corresponding pixels on the digital photo. Special software (Eddi-2d) was applied to rectify the individual photos. After the photos showing the different parts of the wall were joined up, it was possible to complete the geometrically referenced images of the individual wall surfaces ❻.

During the third measuring session, the temporary wooden structure simulating the original room was measured after all the objects belonging to the artwork had been removed. The surveyor recorded all the necessary measurements with a laser distance meter and foot rule and then created the plans with the aid of CAD software ❹.

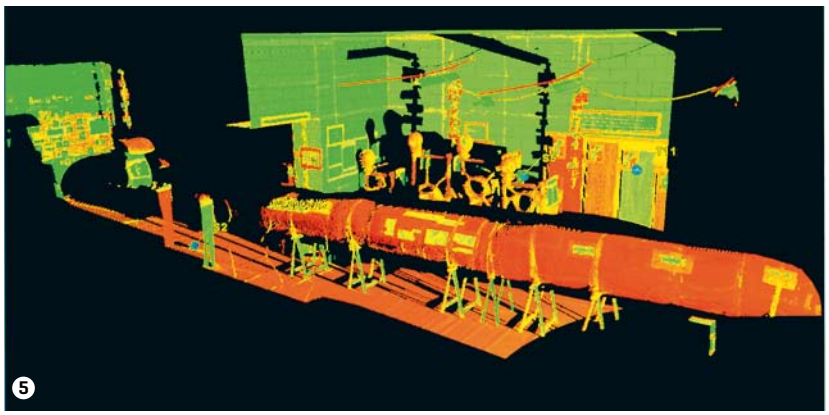


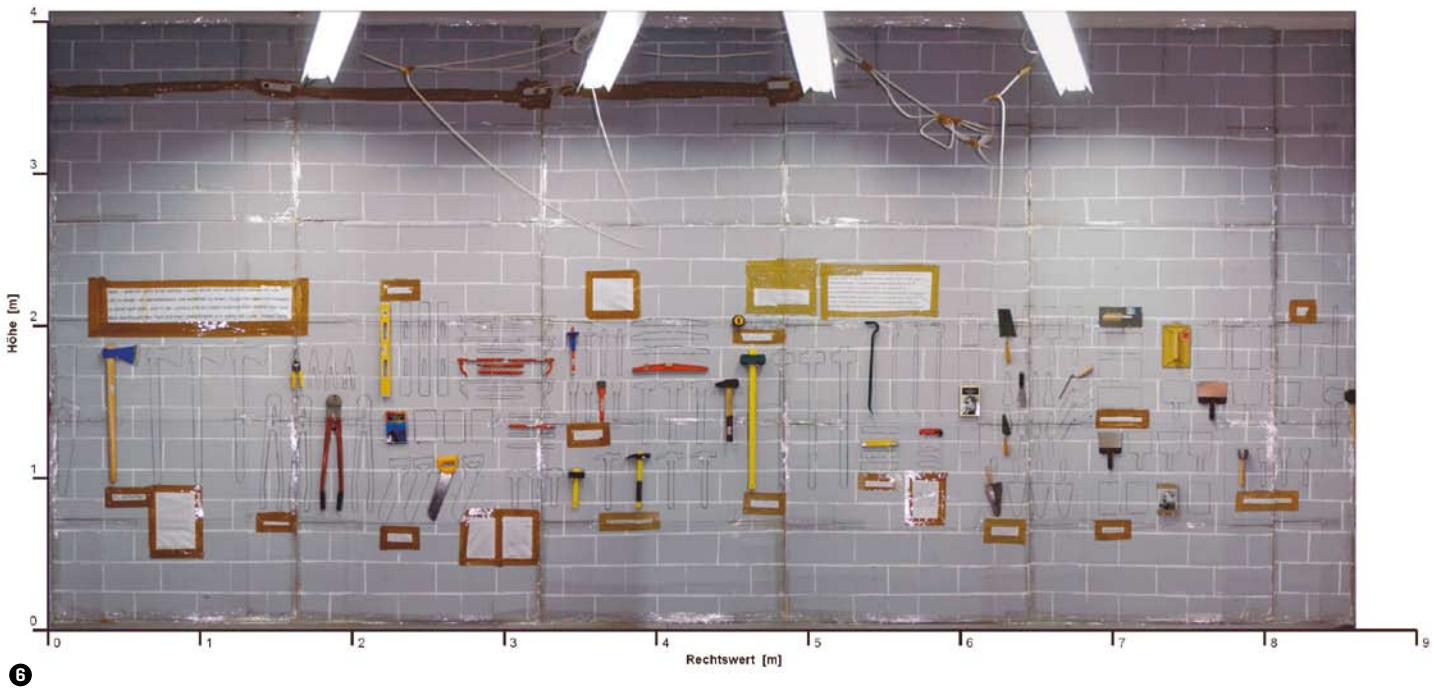
❹ Outline plan of the temporary wooden structure. PHOTO Technische Universität München, Chair of Geodesy (Thomas Weber) COPYRIGHT Technische Universität München, Chair of Geodesy.

Documents and evaluation

The Doerner Institut has several plans with different scales: an overview plan with a scale of 1:100 shows the layout of the installation within the setting of the entire exhibition room. A detailed floor plan with a scale of 1:25 shows the position of the objects within *Doppelgarage* ❸.

For two shelves and their content, separate floor plans and elevation plans





❺ Scan from a single scanner position. Each pixel has its own measurement coordinates. The colour values depend on the respective intensity of the reflected laser beam. IMAGE Technische Universität München, Chair of Geodesy [Thomas Weber] COPYRIGHT Technische Universität München, Chair of Geodesy. ❻ Plan of rectified images, true to scale, of Wall 3 [Room 1] of *Doppelgarage*. Attached to the wall are a number of tools, the positions of which are documented on this plan. The neon lights have not been equalized because they are not on the reference level to which equalization applies. PHOTO Technische Universität München, Chair of Geodesy [Thomas Weber] COPYRIGHT Technische Universität München, Chair of Geodesy.

were drawn up with a scale of 1:10. The inventory numbers of the individual objects are included in the plans.
The walls of *Doppelgarage* are represented on a total of eight illustrated plans on a scale of 1:10 ❻.
The temporary structures are documented by a floor plan and elevation plan with a scale of 1:100. Both include measurement details ❹. This variety of plans meant that all the requirements of the conservators could be met in a structured manner. Given the tight schedule for dismantling the installation, it was a great advantage to receive the rectified photographs of the walls after only two days and to be able to use them for positioning and labelling of the individual wall elements. This form of inventory-taking had to take place during the dismantling stage because the boundaries of the individual wall sections were not recognisable in their installed state. As the example of the *Doppelgarage* shows, geodetic surveying is an essential tool for the documentation of large-scale artworks. Anyone who does not know the installation can use the surveying documentation in combination with the photographic documentation and the inventory list to obtain a detailed impression of the artwork.
As far as possible, the artist of the respective installation measured at the Pinakothek der Moderne was asked for his or her opinion on the status of the plans with respect to future reinstallations in the museum.[10] Although Thomas Hirschhorn saw the advantages associated with surveying, he does not regard the plans as binding: 'I am basically in favour of employing all technical means to facilitate a precise, efficient, material-true and time-saving reinstallation of *Doppelgarage* [...]. To possess plans that make it easier to set up a reinstallation of *Doppelgarage* is very important. On the one hand, I hope this makes dealing with my work complex-free. And on the other, I only hope it means that *Doppelgarage* can be shown more often. [...] However it is not helpful to produce an exact copy, I would rather see changes to *Doppelgarage* continue to be possible (as already discussed, access, emergency exit, length of the rooms). Allowing for the particular spatial features of the (new) location for the exhibition, what really counts here is staying faithful to the artistic mission of the work.[11]

Conclusion

All in all, the experience gained with geodetic methods during the aforementioned projects at the Pinakothek der Moderne has shown that these are excellent tools for documenting installations in which the placement of objects is specified by the artist and of course for documenting specific iterations of variable installations.
Regardless of whether or not the plans are used as the basis for future reinstallations, documentation of at least one arrangement, as authorized by the artist, has been professionally created and is available to future generations. With respect to the timeframes in which a museum is managed and operates and to its duty to preserve artworks, geodetic surveying appears in a new light: as the museum's response to the artist's stylistic tool of spatial arrangement.

[10] See the statements made by Pipilotti Rist, Mark Manders, Thomas Hirschhorn and Olaf Metzel in the respective chapters in Grün 2007. Both Mark Manders and Olaf Metzel declared that the plans can be used unreservedly as the basis for future reinstallations. Furthermore, they no longer need to be in attendance. Pipilotti Rist also gave permission for reinstallation according to the plans in her absence, provided that the artwork is reinstalled within the same space.

[11] Thomas Hirschhorn in a questionnaire by Christina Spaarschuh and Maike Grün, e-mail reply on 28 August 2005.

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Light - A Hybrid Medium: Suggestions for the Documentation and Preservation of Artworks Based on Light Technology

Franziska Wagner

Abstract
This chapter aims to illuminate the challenges that arise when caring for artworks based on light technology. The first part briefly describes some general aspects of light, the history of light art, as well as difficulties of displaying works of art based on this ephemeral medium. Various suggestions to facilitate documentation and hence maintenance and preservation follow in the main part of this chapter. The final section provides a summary and short outlook on potential problems and solutions for the conservation of light based installations illustrated by incandescent lamps. This chapter summarizes experiences gained during a light art exhibition in 2005/06 at ZKM Center for Art and Media, Karlsruhe, Germany and knowledge acquired since in daily practice.

Introduction

General aspects of light

The obstacles of dealing with the elusive medium of light were identified early on by the citizens of Schilda, according to a sixteenth-century German legend. When these 'Schildbürgers' built their city hall, they forgot to put in windows. In an attempt to illuminate the building after it was completed, they started collecting sunlight in all sorts of pots and sacks and emptied them out inside the city hall. The intention was to generate light via the 'captured' light rays. This non-serious experiment did not work, of course. However, it is a vivid image to start with when discussing the challenges in the preservation of light artworks. Beforehand, however, some general aspects such as the perception and generation of light will be discussed.
Light is perceivable by all living organisms that have photoreceptors. The light detectors in the retina of the human eye have a very complex structure and can detect very high light intensities and, after proper adaptation, extremely low intensities. At moderate light intensities, the eye can spot tiny differences in colour shades, but, as the intensity drops, colour vision is lost in favour of a greater light sensitivity. The human eye in general can distinguish light – that is, electromagnetic radiation in the visible part of the spectrum – in a wavelength range between 380 and 780 nm. The generation of light is as diverse as the light sources available. Describing this diversity is beyond the scope of this chapter, therefore a simple key process will be considered: the

heat-driven light emission such as heating the filament of an incandescent lamp. This light source has attracted particular attention since 2009 owing to the gradually progressing ban of incandescent light bulbs in Europe and will therefore be used as an example within this chapter.

Light art and potential risks of displaying light artworks

Light art is an artefact of the twentieth century. In order to emerge from the consumer good 'light' into a medium of art history, the nineteenth-century achievements such as photography and moving pictures were essential, not forgetting that electrical light itself was not been invented until the nineteenth century. The use of real utility objects in twentieth-century art, called 'readymades', may additionally have been fundamental for light to develop into an autonomous design element.

Light art began in the 1920s with silhouettes and shadow puppet theatre, light organs, light reliefs, light boxes, light objects and kinetic objects. Its pioneers include for example Thomas Wilfred, László Moholy-Nagy and Zdeněk Pešánek. Various art forms were subsequently developed such as light rooms, light environments, light performances, light installations, video installations, holograms, light and laser projections, and eventually digital media artworks. The medium 'light' can often be found together with the media 'movement' and 'sound', whose characteristics are discussed by Reinhard Bek in the following chapter.

Light and hence light art can be emitted, absorbed, reflected, bundled, dispersed, projected, transmitted or polarized, to provide a few examples. Light artworks can be switched on and off, controlled and programmed. Light sources of light art installations, including their operating devices, and other accessories, can either be concealed from the viewer or they can be visible components and hence crucial for the artwork's appearance. As is common practice for contemporary artists, everything is used that hardware stores and light technology have to offer: ranging from incandescent light bulbs to discharge lamps, from neon systems to floodlights and from electroluminescent foils to light-emitting diodes (LED) to name a few.

The 'products' of light art, like many other ingredients of contemporary art, are therefore inevitably linked to the industry and changes in the marketplace. Because of this, they seem to be even more vulnerable and ephemeral. This is not only because light, as a non-tangible part of the visible electromagnetic spectrum, is an elusive hybrid medium, as mentioned before; the artwork, as a tangible manifestation, is just as elusive. The light can go out very suddenly here. What is to be done, for example, when 'standard' parts, such as operating devices, are no longer available? What is to be done when lamps, that is, light sources, are no longer produced or when characteristics are changed such as the design, wattage, or colour temperature? This having been said, all strategies aimed at preserving artificially illuminated artworks would be doomed to failure very quickly. But it's not only the light industry and hence the availability of consumer goods that can have a negative impact on the artwork's lifetime. The latter can also be affected profoundly should artworks in collections of modern and contemporary art not be properly recorded, as will be shown subsequently.

Documentation of artworks based on light technology

General aspects of documentation and terminology

Proper documentation – as commonly known for the conservation of contemporary art – seems to be a key aspect for the preservation of artworks based on light technology. Missing or improper documentation can cause installations to be unintentionally reinterpreted instead of being displayed as the artist originally had intended them to be shown. Objects then may appear either too bright or too dark due to a wrong colour temperature or wattage. They may flash too short or too long, too slowly or too quickly due to a wrong control unit. Visible components may have been replaced and may differ significantly from the original. Furthermore, the artwork's appearance and effect may be distorted altogether should the characteristics of the surrounding space not have been clearly documented during the original first display. All these factors can be disastrous for the artwork's survival. Whether collections are sufficiently documented is an obvious question in this context. An increased awareness of this issue may have been raised by the new European regulation on the ban of incandescent lamps and the associated press headlines causing one collection or another to deal more carefully with light artworks since 2009.

An obstacle for the documentation could be that conservators lack the knowledge about what they are dealing with in individual cases and may, above all, not be conversant with the required terminology to describe the respective components. Various databases accessed by the author as well as discussions with colleagues demonstrated that technical details of artworks based on light technology are often poorly specified and documented. A work by Tobias Rehberger, for example, is described as 'lamp installation with 89 droplet-shaped glass lamps'. The materials for an installation by Mario Merz are specified as 'metal, stone, glass, putty and electric light' to name another example. But how can conservators find their way in this foreign world of terminology? How should a quasi-layperson assess the details that are essential for the documentation of artificial illuminated artworks? Details that are decisive in ensuring that the work can be presented as close to the original as possible for as long as possible. These questions are easily answered: by consulting light specialists. Specialists such as electro-technicians and electricians can provide valuable assistance. However, it has to be mentioned here that in-house facilities electricians do not necessarily have be qualified to deal with light artworks. Manufacturers and dealers are other specialists who can be contacted. In the case of neon systems, collaboration with neon manufacturers is highly advisable. It is also worth leafing through manufacturer's catalogues or browsing the Internet to familiarize oneself with light and electro-technical terms. Terminology on light technology is necessary not only for documentation purposes it also facilitates the communication with the respective specialists.

Once this hurdle of terminology has been crossed, artworks can be quickly recorded, or depending on their characteristics, may require more complex documentation, as will be shown below. Describing all aspects of documen-

tation is not possible in this context, therefore only a few aspects will be considered that conservators may not necessarily be familiar with.

Aspects of documentation – technical description

The technical description of light-based installations can be a complex and challenging undertaking. The following aspects can be considered for documentation purposes.

In the first step, as is common practice, the works must be specified in terms of having object or room character. In both cases, but mainly in the latter one, the technical and electro-technical requirements of the space must be described. This part of the documentation is necessary because the visual characteristics of the artwork are decisively influenced by the dimensions and layout of the room, the types of materials, colour scheme and design of floors, ceilings and walls as well as the existing light sources and hence the prevailing light conditions. This information is just as useful for future displays as details on the type of power supply (three-phase current or supply voltage), number of sockets and cable routing. Technical specifications of the wall structure are necessary because walls may have to be drilled in order to hide cables or may even have to be accessible from the rear because operating devices or other technical equipment have to be concealed but remain accessible during display. All these parameters can usually be gathered by consulting the respective specialists such as building technicians, exhibition technicians, electro-technicians to name a few. They are documented using the usual measuring instruments as well as plans and samples. Ideally a meter should be used to determine the colour temperature and luminance. This is especially recommended as these metered values may change during display.

In the next step the object or installation has to be specified in detail. Here the type and amount of artificial light sources should be noted along with their respective components. These components may include lighting fixtures, illuminants, sockets/holders, cables and plugs as well as external or internal operating devices and possible control and switching units. Potential relevant details of these components are given below.

Lighting fixtures should be briefly described in terms of their appearance – industrial product versus a unique 'handicraft' – specifying the design, dimensions and materials. Further data such as model, name, manufacturer, article number, light technical parameters and type of mounting are also useful.

Illuminants can be specified in terms of the model, dimensions, design, manufacturer, material and bulb finish (e.g. clear, frosted, coated, vaporized, dipped, coloured), type of gas filling, burning position, power (watts), voltage (volt), current (ampere) and colour temperature (Kelvin). Neon systems require specification in terms of their country of origin and/or the artist's nationality as this provides information on manufacture and type of glass because neon systems are produced differently around the globe. Here the glass shape and curvature must be documented via templates to provide reference material in case of breakage (reverse drawing) and to facilitate installation (face drawing).

Bases, as integral parts of illuminants, should be specified as to dimensions and types (e.g. single- or double-ended bases, or more accurately screw (E), bayonet (B) or pin (G or F)). Illuminants without bases should be specified as to the type of cabling. For neon systems the position and insulation of electrodes, type of supports and mounting should be given. An exemplary classification of illuminants could then finally be: Osram CLAS A CL 40W 230V E27 clear, where CLAS A stands for CLASSIC Arbitrary and hence a common bulb made of clear glass. The wattage is 40W, the voltage 230V. The E27 stands for an Edison base, which is a single-ended screw base with a diameter of 27 mm, named after the 'inventor' of the common incandescent lamp. According to the international lamp coding system ILCOS 1231, developed by the International Electrotechnical Commission (IEC), it is equally known that this very illuminant ILCOS IAA/C-40-230-E27-60 has a bulb diameter of 60 mm, a total length of 105 mm and a lifespan of 1000 h. Sockets/holders should be specified as to their type (e.g. screw, bayonet, clamp) and material (e.g. plastic, metal, porcelain).
Cables can be specified as either high voltage or mains voltage. Whether cables comply with the safety requirements, such as being fitted with earthings, core cable ends and/or clamp fixtures should be recorded in this context. The sheathing material might finally give an indication of the date and hence can help determining whether the cable is the original one or not.
Plugs, if available, should be specified in terms of the type and country of origin because country-specific standards apply in this case. Type C CEE 7/16, for example, describes the Euro plug, which is a flat plug that can be used in nearly all European countries. It is made by injection moulding and thus comes in one piece that cannot be taken apart. Plugs must comply with the respective standards for safety reasons. They are the first indication for the required supply voltage and therefore may require adaptors; if not available plugs need to be fitted.
Operating devices are either switch mode power supplies, transformers or ballasts the latter two of which being divided into electronic and electro-magnetic models. The respective type to be used depends on the type of illuminant. Should an ignition voltage be required, starters as well as ignition devices have to be applied. Neon systems and electrodes can be damaged using a wrong transformer that is operated at either overload or underload. In order to prevent faulty operating the correct rating of transformers has to be determined specifying number, diameter and colour of neon systems. Relevant technical details of these devices can be found on the respective type plates. There is the primary voltage, that is, supply voltage (110 or 230V | 400V) and secondary voltage, that is, rated voltage of the lamp, which can range from a fraction of one volt up to several 1000V, as well as the mains frequency of the alternating current (60 or 50 Hz). Various types of transformers are available such as isolating transformers that are particularly suitable for testing and displaying purposes because their design minimizes the risk of an electric shock in case a live part is touched accidentally.
If and how light systems are to be dimmed, switched, controlled and programmed should also be recorded. The technical equipment, such as control desk, DMX, DALI, light organ and light mixer, and the corresponding

Rainer Kehres, Sebastian Hungerer. *Space Invaders Interactive* (2006). Interactive light installation: 176 lighting fixtures, incandescent lamps, cable, wire rope, aluminium tube, DMX light control unit, computer. Displayed at ZKM Karlsruhe 2006 (display dimensions: 1100 x 1400 mm). Courtesy of the artist. PHOTO Christian Ernst, Karlsruhe.

specifications need to be recorded in this context. Here again, consulting specialists such as event technicians to name an example may be of valuable assistance.
The technical description in particular and the documentation in general should, of course, finally include photographs and videos. Here it has to be born in mind to document the 'switched-on' and 'switched-off' condition of light-based installations. Adjusting the colour temperature of the camera and of the artwork's illuminant as well as of its surroundings by using the white balance is also advisable. Should there be a mixture of different illuminants or of artificial and natural light, then this setting is of course difficult to achieve and generally results in a colour cast. Should there be flickering light this can be eliminated for video recordings by using a suitable shutter.

Aspects of documentation – display and maintenance issues

Display and maintenance requirements are an essential part of the documentation and preservation of light-based artworks. At this point the most recent in-service inspection and testing of electrical equipment, that is, Portable Appliance Testing (PAT) must be mentioned and any modifications be detailed that were necessary to comply with the respective safety requirements. Depending on the nature and condition of the artwork, conservators should discuss inspection of the work prior to testing it. It should be mentioned here that electro-technical artworks displayed in public areas must always be tested by specialists during set-up. Such inspections may result in, for example, strain relief on cables or replacement of original plugs by new ones that are safer. High-voltage or laser projections, for example, require warning signs and proper barriers. Lasers, in particular, demand inspection and continuous supervision by a laser safety officer.
These display and maintenance specifications may also include whether an increased generation of heat can be expected due to the type, number and power of light sources or illuminants and whether timers or ventilating devices have to be used as a preventive measure. Conservators are advised to note whether and which devices need to be installed (e.g. time relays, remote-controlled sockets, motion detectors or light barriers) in order to reduce the runtime and hence extend the artwork's lifetime. It is recommended to list operating and idle times in this context. The documentation should be complemented with diagrams as well as electro-technical specifications that include how many circuits are required, whether artworks should be permanently connected to the power supply (e.g. in case of complex installations with control units) or whether they should be disconnected as soon as the museum is closed (e.g. in case of simple neon systems). It should be recorded in this context if a three-phase current requires a residual current circuit breaker to provide protection against accidental contact with live parts and/or an emergency stop switch (colloquially referred to as e-stop) in case of acute danger.
For long presentation times particularly, it may be helpful to provide additional information on the amount of maintenance work in order to determine how susceptible an artwork is to malfunctions or how expensive the display may be. This cost accounting should be supplemented by the respective current

consumption as well as possible costs resulting from installation or maintenance by specialists. Furthermore, it can be recorded how often certain components require replacement and whether this maintenance work should be carried out by conservators, exhibition technicians or other specialists. Supplied spare parts and their quantities also must be documented. Should spare parts have to be procured, the source needs to be given. It is helpful in this case to provide information on the availability or possible new data in case the manufacturer or model has changed.

Conclusion and outlook

Possible key aspects for the documentation of light artworks have now been listed. Admittedly, such a survey can be a very complex undertaking. Above all, it is a continuous process that does not end with the installation of the work but instead must include all modifications made during display. The provided criteria illustrate the importance of proper documentation for the preservation of artworks based on light technology. It is crucial here for conservators to cooperate with specialists. Should conservators not be familiar with technical terminology, they are advised to ask and/or search for further clarification. It should always be borne in mind that faulty documentation will alter the artwork's original condition and may also become life threatening. Nevertheless, one needs to remain realistic: even though light artworks can be documented and maintained, they have a limited lifetime due to their obsolete media. Because the light can go out very suddenly, as previously mentioned, conservators in the future will need to make difficult decisions based on knowledge of artist intentions and available technologies within the framework of conservation ethics. Assuming that a non-illuminated light installation will be considered as a total loss, it seems conceivable to adapt industrial developments should one wish to keep such artworks 'alive' for as long as possible. Light objects should of course be preserved as close to the original as possible, but modified with the respective new technology in good time if possible. A good example for the potential total loss of light-based artworks caused by fast-moving industrial developments is the previously mentioned European legislation promoting energy-saving lamps and banning incandescent lamps. According to a German incandescent lamp manufacturer, the currently much-praised energy-saving lamp is supposed to be superseded by LED technology by about 2015. Even if art collections have bought large quantities of incandescent light bulbs as a precaution since 2009, these supplies as well as second-hand sources will also dry up in Europe in the foreseeable future.

However, there is light on the horizon: in 2010 the ZKM Karlsruhe initiated cooperation with a German illuminant manufacturer who will continue producing special industrial incandescent lamps. These are, for example, oven incandescent lamps with fracture-proof glass and filaments as well as heat-resistant bases. Glass blowers at this factory can still produce one-off pieces by hand, even if the provided incandescent lamps no longer illuminate and if relevant data on the bulbs have faded away. Microscopy and other examinations are used then to reconstruct the missing data. Although the original

standard may no longer be available, there can be replacements made that will be quite similar.
It becomes evident in this context that the established ethical guidelines for conservation practice such as minimal intervention and/or authenticity have to be reconsidered when dealing with artworks based on light technology and hence obsolete media. This reviewing is necessary because a fundamental part of the artwork is its ability to operate and illumine.
Should the light finally go out in spite of all adaptations or because modifications are considered unethical and therefore unacceptable, then it is left to future generations to find ways of dealing with these 'light relics' based on the provided documentation. The trouble with preserving this hybrid medium 'light' was recognized over 500 years ago by the previously mentioned 'Schildbürgers'. These legendary pranksters thought they had solved the problem of lighting their city hall by taking the roof off – until it started to rain. But that is another story.

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- AV INFO www.proav.de
- Bailey www.bailey.nl/
- Bulbrite www.bulbrite.com/
- Dimmer Doktor Informationen zu Beleuchtungstechnik, Leuchtmittel und Lichtsteuerung www.info.dimmer.de/dindex.htm
- EiKO-Europe GmbH www.eiko-europe.de/
- Electropedia: The World's Online Electrotechnical Vocabulary http://dom2.iec.ch/iev
- Elektro Arens GmbH & CO. KG – Fachhandel für Licht, Leuchten und Elektronik http://arens-licht.de/
- EncapSulite www.encapsulite.co.uk
- FELDMANN Speziallampen-Vertriebs GmbH www.feldmann-speziallampen.de
- GetInfo Fachinformationen für Technik und Naturwissenschaften https://getinfo.de/app International Electrotechnical Commission www.iec.ch/
- Lagotronics® www.lagotronics.nl/
- LEO Deutsch-Englisches Wörterbuch http://dict.leo.org/
- Das Portal zu Licht, Lampen und Leuchten www.licht.de
- Light Art From Artificial Light http://hosting.zkm.de/lightart/
- light+building The world's leading trade fair for Architecture and Technology http://light-building.messefrankfurt.com/frankfurt/en/besucher/willkommen/erleben.html
- Long life for art www.cwaller.de/deutsch.htm
- MEGAMAN® www.megaman.de/
- Multi Language Technical Dictionary www.yourdictionary.com/dictionary-articles/multi-language-technical.html
- neon circus www.neoncircus.com/
- Nichia Corporation www.nichia.co.jp/en/about_nichia/index.html
- PHILIPS UK www.lighting.philips.co.uk/
- PHILIPS www.philipslumileds.com/technology
- Siteco Beleuchtungstechnik GmbH www.siteco.de/de/licht/glossar.html
- Verband der Elektrotechnik Elektronik Informationstechnik e.V. www.vde.com/vde
- Wikipedia http://en.wikipedia.org/wiki/Main_Page
- Zumtobel www.zumtobel.co.uk/gb/en/default.htm

The above references are mainly based on the bibliography of the Glossary of Light Technology by the author. Only some of those books, articles and websites have been used for this chapter. The rest is listed as a source for the reader in order to facilitate further research.

Between Ephemeral and Material – Documentation and Preservation of Technology-Based Works of Art

Reinhard Bek

Abstract
When sculptures or installations utilizing technology-based components age, conservators are presented with the question of whether to exchange or preserve the vulnerable elements. However, documentation and long-term preservation protocols, useful to the decision-making process are typically not in place before such realities arise. This chapter discusses the documentation and preservation of technology-based artworks that have both sculptural and time-based components. With such works, the conservator must balance classic sculpture conservation concerns such as material and surface change against the functional technology-based aspects of the artwork. The challenge arises when the functional element also serves a sculptural role and the preservation of the artwork's materiality is in opposition to preservation of the artwork's function.

Introduction

'The art and science of the nineteenth century strove to find a form for something characterized by formlessness.'[1] This chapter is dedicated to the formlessness of light, sound and movement in the fine arts of the twentieth and twenty-first centuries.

In 1920, with the help of employees of the Moscow Polytechnic Museum, Naum Gabo produced the sculpture *Standing Wave*. Using the electromagnet of an old factory bell and other electric parts, the artist attached a thin metal rod to a black wooden box; this rod extended vertically through a hole in the box. With the application of current, the electromagnet initiated the vibration of the metal rod. The observer, unable to distinguish the rapid movements, perceived a volume delimited by two counter-rotating curved lines. As a result of this experiment, Gabo created a virtual sculpture that existed only as long as voltage was applied to the electromagnet; this demonstrated the idea that, according to the artist's writings (1969), 'when you look at a standing wave, the image becomes three-dimensional'. The effort earned him his place in art history as a pioneer of technologically based works.

Gabo donated the fragile original sculpture to the Tate Modern in London. In acknowledgement of the fragile assemblage of materials of the original, he authorized various display copies. Today, these copies are found in the Tate Modern in London, the Landesmuseum for Moderne Kunst (Berlinische Galerie) in Berlin and the Museum of Modern Art in New York ❶.

Standing Wave is a typical example of many technologically based works of

[1] Text on a banner in the exhibition *Wolkenbilder* in the Old National Gallery in Berlin, October 2004.

art from 1920 to the present that cannot be operated in their original state. Consideration for the original material of *Standing Wave* is in opposition to the desire of the artist to realize the experience of the artwork's function. This circumstance led in this case to the creation of three display copies, thereby preserving the authentic materials and allowing viewers to see the result of the artwork's action.
A secondary form of preservation is conserving the photographs of the artwork. Naum Gabo photographed his work as a lasting visualization of the event. This legendary photography is an important document of the artwork in operation. Today, art experts follow the same principle for documenting a functioning artwork when an action, such as the vibrating metal rod, needs to be recorded.

Two different modes of the artwork

A technology-based work of art has a physical component as well as a time-based component. The physical aspect comprises all parts of the artwork that define its external form. The time-based element, on the other hand, emerges from the performance of the functioning devices in the artwork. For *Standing Wave*, the black wooden box with the electrical parts it contains and the metal rod form the physical presence of the work. The vibrating metal rod, oscillating only as long as the artwork is switched on, defines the time-based component. In general it can be said that the work of art 'in operation' transmits sensory stimuli such as light, movement and sound to the observer through its integrated devices.
Unlike a traditional sculpture, the technologically based work of art has an *on* mode and an *off* mode. The *off* mode is the work when it is switched off, without its event. Only the *on* mode displays the work in its material and immaterial totality. Thus with *Standing Wave*, the motionless metal wire extending from the black box represents the *off* mode, while the same piece vibrating is the *on* mode. The artwork exists as a whole only in the *on* mode, yet it is inconceivable without the *off* mode. The reason for this lies in the required technical apparatus. Documentation of the artwork must thus take into account both modes, and can be accomplished using motion pictures as well as still photography. In this respect, each documentation of a functioning work includes a detailed description of the *on* and *off* mode. The still photograph of the off mode describes the physical constituents of the work, whereas the event of the work is documented by video, film, and other methods.

Documentation of movement and sound

Movement and sound are time-based forms of expression. They are ephemeral and relative to our perception of space and time. Sound, in particular, is defined not only by the producer of the sound, but is also influenced by the surrounding space, its qualities of construction and the position of the listener. Furthermore, the phenomena of sound and movement in contemporary works of art often contain technical and content relationships to other parts of the work. Due to the performance-like manner in which a technology-based artwork may be experienced, it can rarely be documented in its entirety. Therefore when documenting a work, in addition to a physical description,

a description of the essence of the artwork as a formal whole is called for, including its material and time-based components, its interaction with the observer and the relationships of meaning within the work of art. Such an inclusive description is the foundation for future conservation efforts.
There are many options for measuring and physically describing a technology-based artwork:

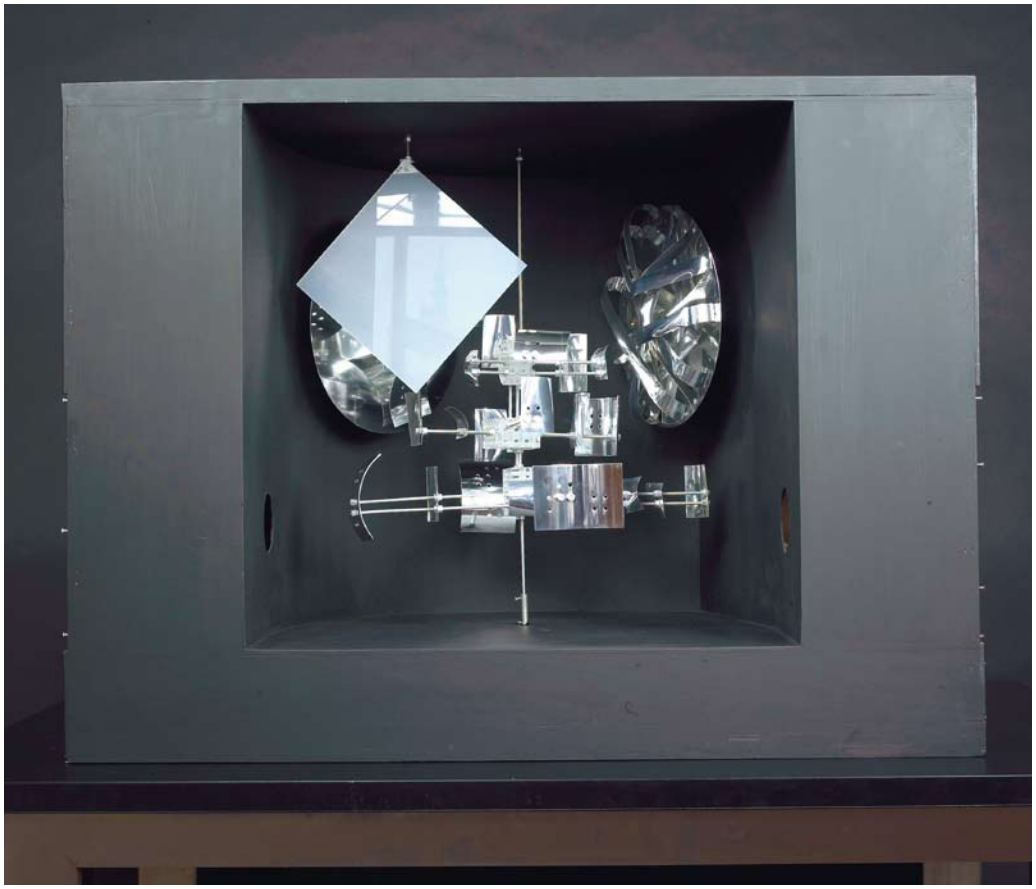
— Various photographic methods are appropriate for documenting sequences of motion. Photography can document movement through time exposure and multiple exposure techniques. In the present case, the object moves across the photographic image and manifests its spatial movement in visible time. Therefore, time exposures can be used to record the scope of an action, multiple exposures the individual steps of progression over a fixed time interval, and two photographs of the animated piece at its extreme points to give a rough impression of the overall event.[2]
— Motion picture documentation best communicates the character of the work in action. An overall view and various detail approaches in conjunction with associated sounds provide the most comprehensive media impression.[3]
— Videography using two cameras and computer software records movement as the change of a point in space over the time. It is the best option for comprehensive documentation of motion.[4]
— Visibly manifested programs of sequences, recorded graphically, provide concrete data such as with Nicolas Schoffer's *Microtemps 11* ❷. The sequence from left to right shows the *on* and *off* mode of the various switches for the electric circuits of the light and motor controller.
— The documentation of sounds depends on the position of the listener, the source of the sounds and the surrounding space. A combination of detail photographs, linked to audio and decibel level recordings can be suitable for an overall impression of the artwork's sound. In contrast, ear microphones are appropriate for recording the individual listening experience because only those noises are recorded that actually reach the ear including some which may not be heard in a particular position. In combination with film documentation, such recordings come very close to the impression of the original artistic sound experience.[5]

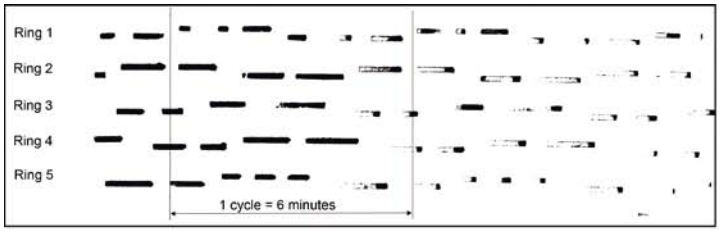
Staging of the artwork

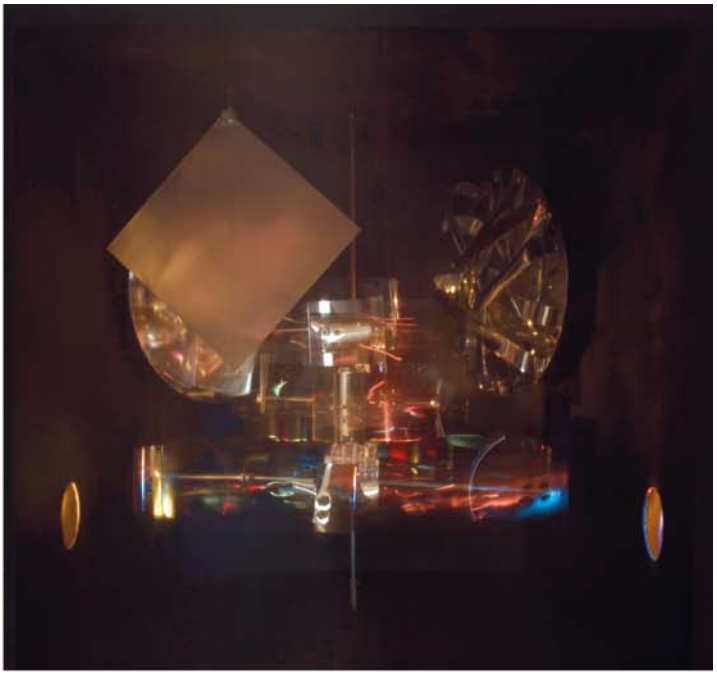
Technology-based artworks are generally costly to install. Installation processes frequently involve other professions like electricians, A/V-professionals and light designers. The conservator responsible will have to find the compromise between the artwork's integrity and institutional regulations for a particular site. Technology from abroad may require special frequencies or currencies. In case of public interaction, guidelines for the interface between the public and the artwork require definition.
When an artwork is exhibited for the first time in a museum environment, the conservator should be aware that the technology used by the artist may not be intended for an eight-hour viewing day, six days a week over several months. Therefore, the artist and conservator, in cooperation with the displaying institution, should consider this reality and discuss technical

[2] See document *Photographic Documentation of Movement* at www.inside-installations.org/OCMT/mydocs/Photographic%20documentation%20of%20movement%20english.pdf [accessed 3 September 2010].
[3] See document *Introduction to the Documentation of Kinetic Art* at www.inside-installations.org/OCMT/mydocs/Introduction%20into%20documentation%20of%20kinetic%20art%20english.pdf [accessed 3 September 2010].
[4] See document 3D *Video Analysis* at www.inside-installations.org/OCMT/mydocs/3D-Video-Analysis%20english.pdf [accessed 3 September 2010].
[5] See document *Recording the Sound of Installation Art Objects* at www.inside-installations.org/OCMT/mydocs/Recording%20the%20sound%20of%20installation%20art%20objects%20english.pdf [accessed 3 September 2010].

❶ Naum Gabo, *Standing Wave*, 1920, display copy, Tate, London. [LEFT] off [RIGHT] on. PHOTO COPYRIGHT Nina Williams. 2010.







❷ Nicolas Schoffer, *Microtemps 11*, 1965, Museum of Modern Art, New York. [ABOVE] Colour photograph of the work, switched off. [BELOW RIGHT] Work in operation. [BELOW LEFT] Record of the electric controller based on five electric circuits. PHOTO COPYRIGHT Pictoright Amsterdam.

changes. Additionally, the conservator should anticipate that once the artwork is installed, maintenance will stay on a high level.

Between relic and regeneration

Along with the audiovisual documentation of the work and its functioning constituents, such as motors, vacuum tubes or loudspeakers, comes the challenge of maintaining the artwork's performance. Devices and their technologies become obsolete very quickly due to the rapid progress of technology. For medium-term conservation of functional art, knowledge of existing technologies must be preserved and passed on. A culture of ongoing maintenance and repair can be established based on the principles of conservation, for which regular monitoring, operation, maintenance, as well as associated repairs, are prerequisites to consistent conservation of the artwork. These activities may require a specialist with an active relationship with the work.

Regardless of the conservation initiative, wear and failure of devices are the result of the artwork's functionality. Repair and replacement are the logical consequences. However, this aspect contradicts the basic ethical principles of conservation: authenticity, minimal intervention and reversibility. Five options may arise from this dilemma that dictate different conservation strategies:

— The work of art is retired from operation due to its technical difficulties and is subsequently handled as a relic. Under such circumstances, priority is given to preserving the material stability. A work that has an aesthetic appeal and an obviously understandable function even without its performance is more likely to be decommissioned than a work that is expressed primarily through movement or sound. *Méta-Mécanique* by Jean Tinguely is such an example: the work can be appreciated even without its movement and is relatively easy to understand in terms of its movements ❸.

— The technical defect is corrected by a specialized craftsman when the repair typically only affects particular parts of the artwork. With *Micro-temps 11* by Nicolas Schoffer, for example, the motors are repaired if they malfunction ❷.

— The technical defect of the artwork can no longer be corrected by a specialist. In this case the option of replacing a part of the artwork is considered and the prerequisite for this decision is the availability of the part or the degree of its similarity. This depends on the artwork's age. The motors used in Nicolas Schoffer's *Microtemps 11* are no longer available, so in the event of damage one must consider to what extent new technologies can be used ❷.

— The technical defect allows neither repair nor replacement of a part, and decommissioning is not an alternative because the performance is too important an aspect of the work to lose. In such cases, simulation of the acoustic or kinetic event should be considered. This is similar to the reasoning used for the conservation of material stability. Thus, for example, sounds can be simulated if the work itself can no longer produce them. However, simulations can be difficult insofar as a false reality is imposed upon the artwork with its authentic components.

— The technical defect allows neither repair nor replacement of a part. Decommissioning the original artwork and fabricating a display copy is an alternative, which is described in the beginning of this chapter with the case of Naum Gabo's *Standing Wave*. This is an example of a work, which was copied to preserve the original material. Therefore the exhibition copy was created with improved technology to reduce the wear caused by the copy's performance ❶.

If the conservator chooses to give preference to authentic operation as opposed to authentic material, the consequence in the long term is a change of form and the potential lost historical reference. However, in order to make these decisions, researchers and decision-makers must possess a capacity for empathy and abstraction with regard to the essence of the work above and beyond its material existence.

The strategy of conservation

If the knowledge of the materials and technologies of a work are threatened by obsolescence, it is time to discuss the basic concept for its conservation. There are various options for such conservation planning, which always move between two extremes:

1. One extreme is toward an overriding consideration for the historically authentic work of art. In this case, the work is treated as a historical relic. Moving image and photographic documentation of the work in operation as well as display copies communicate the event of the authentic work. Naum Gabo's *Standing Wave* is an example of such a concept decision.
2. At the other extreme is the desire to maintain the authentic operation of the artwork for an unlimited time. The results of this solution are compromises that may undermine the historical authenticity of the material. Thus the regeneration of the artwork, according to the possibilities of the respective period and its technological options provides an extended life to the limits of the authentic conception. This is true for works mainly comprised from time-based media components such as video installations.

Many conservation protocols will fall somewhere between these two extremes. For guidance on this subject it is worth considering the value systems constructed by Alois Riegl (1903) and Cesare Brandi (2006). Of particular note are Riegl's writings about age value, historic value, art value and utility value regarding the restoration of monuments. Since some of the monuments are still in use, like churches, there is a parallel to technology-based artworks. Therefore the utility value could potentially be another parameter in decision-making processes.

In comparison, Cesare Brandi's value system with its two extremes of the historic value and the aesthetic value doesn't seem to fit since the discussion limited to the two poles historic - aesthetic, and does not address the state of the work within the context and its condition for transition when it is functional. In response to this missing link, Hiltrud Schinzel (2007) proposed the introduction of a third value for contemporary art in addition to historic and the aesthetic values. She introduced the specific age or up-to-dateness of the work of art for assistance in conservation decision-making. Does the work

❸ Jean Tinguely: *Méta-Mécanique,* 1955. PHOTO COPYRIGHT ProLitteris.

❹ *Char Mk*, 1966/67. PHOTO COPYRIGHT ProLitteris. ❺ *Méta-Harmonie IV 'Fatamorgana'*, 1985. PHOTO COPYRIGHT ProLitteris.

have, as Hiltrud Schinzel aptly expressed it, 'potential current interest' – and is thus bound to the contemporary context in its intention and components? 'It is clear that recent art is in its content most able to be revived and thus should also be reanimated', she writes.

The point in time for the transition from the contemporary phase to a historical phase can vary quite considerably according to the work. Since we are primarily dealing with technology-based artworks of the 1960s, we are currently experiencing this transition. This process of historization leads to an increase in importance for the historical material of the work. An example of this is the 2010 ban on incandescent light bulbs, which resulted in the Tinguely Museum buying a stockpile of 80,000 bulbs in 2009. However, the conservation strategy of stockpiling spare parts does not hide the fact that this problem has only been postponed.

This uncertain status is clearly demonstrated by Jean Tinguely's works from the 1950s and 1960s. They have passed beyond conservation approaches for contemporary works, since the most fragile among them have long since been taken out of operation and are treated as relics. For example, *Méta-Mécanique* from 1955 is no longer operated because it is too fragile, yet the work still has a formal attractiveness without its performance ❸. Many works of the 1970s, on the other hand, are at the transition point between the contemporary and the historical, as evidenced by the fact that many functional parts such as motors and bearings are in fact still available. Therefore, *Char Mk* from 1966/67 ❹. is still operated while the conservation 'tolerance' for dealing with parts replacement, is significantly less than with works from the 1980s and 1990s. These works of the artist's last decade are still considered contemporary or 'current' art, like *Méta-Harmonie IV - Fatamorgana* from 1985 ❺.

When taking the factors outlined above into consideration, the following concerns emerge as topics for discourse in conservation:

— the condition of the artwork ;
— the contemporary status of the artwork with respect to its specific age and its ability to be understood;
— the essence of the artwork with its material and immaterial characteristics;
— the availability and reparability of functional components in the artwork and
— the artwork in the relation to the collection and the owner.

Conclusion

In conclusion, technology-based works of art, if they are not decommissioned, are best served when they maintain their original essence with as little transformation as possible. The desire to maintain a work's functionality as an expression of its aesthetic must be balanced against conservation ethics. However, when the material substance no longer allows the work of art to be operated and there is no interest in decommissioning, simulation of the immaterial event can be a good solution. All long-term strategies for the preservation of technology-based works are challenging because each individual work must be examined in relationship to its preservation, operation and regeneration. Any solution is also subject to the spirit of its time and the technical options available. For ethical guidance, the theories of Cesare Brandi and Alois Riedl can still be adapted.

Acknowledgements
I want to acknowledge my wife Sydney and my son Janic-Anton for their assistance.

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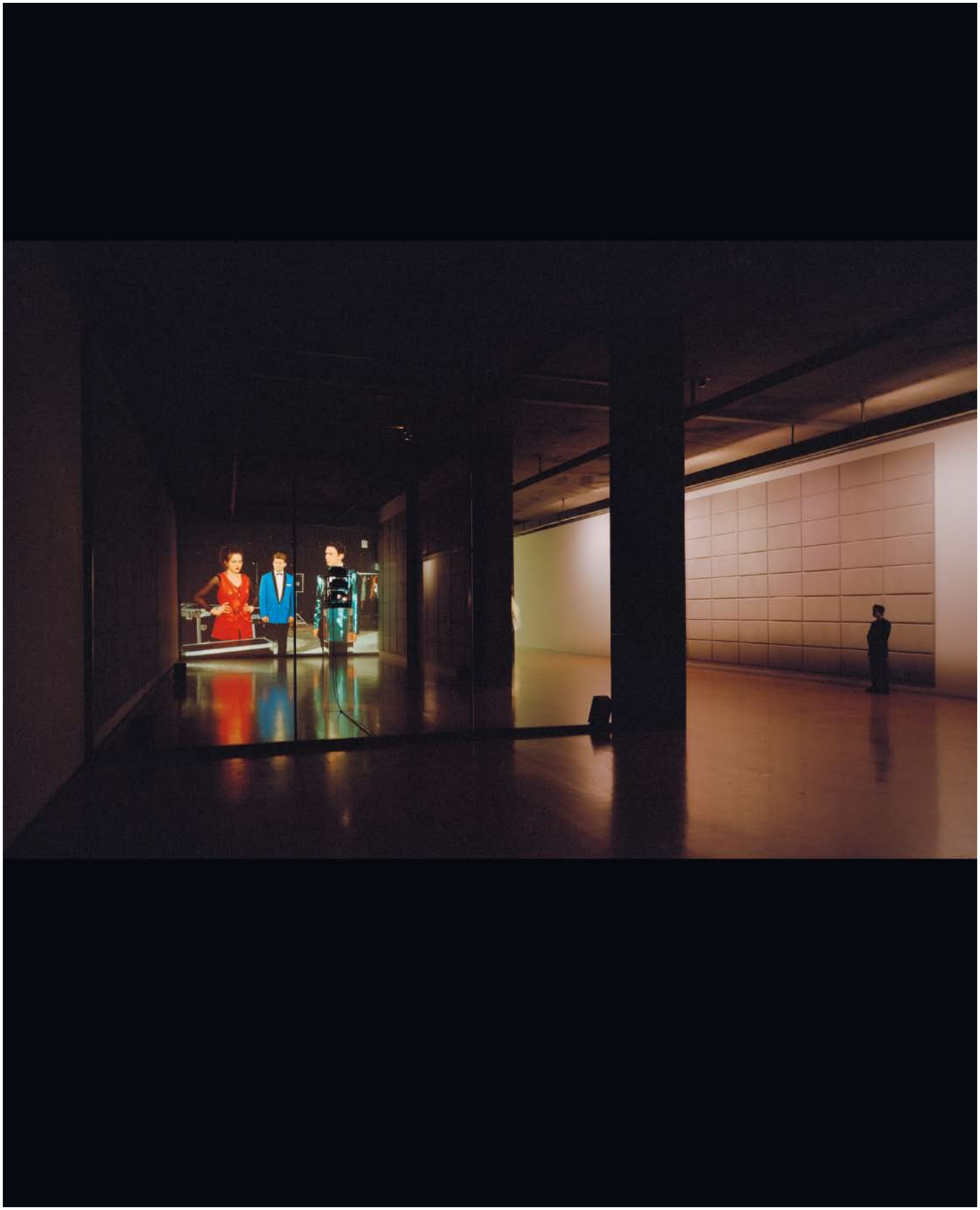

James Coleman. *Lapsus Exposure,* 1992-94, installation view, Lenbachhaus Museum, Munich, 2002. Projected images with audio narration. PHOTO Courtesy of the artist. COPYRIGHT James Coleman.

Aebhric Coleman

Since the late 1960s, the artist James Coleman has worked in a variety of media including slide projections, video and film (analogue and digital); he performed works for the theatre and created sound installations, together with more traditional media such as painting, drawing and sculpture.

As part of the artist's aesthetic practice, Coleman gives particular importance to how his artworks are installed. This is guided by a number of considerations:

— The spectator of an artwork by Coleman forms an integral aspect of the artwork itself. The artist offers viewers the space to perceive the artworks in an open way relative to the spectator's perceptions and subjective experiences. This aesthetic openness is facilitated by how the artworks are installed, based upon precise installation requirements.

— In many respects, Coleman's artworks only exist when installed, and also later on in the memory of the spectator. In part due to the ephemeral and time-based nature of the media used in the artist's work (slides, film, video), but also due to how our personal experience of time and space – through duration, motion and memory – in Coleman's installations informs how we interpret and unfold meaning from the artist's work.

— The environmental conditions for installations – architecture, acoustics, and lighting – are as essential to the perception of the artwork as the presentation of the physical support or the presentation medium itself (slide, film, HD video, LED screen).

Taking these issues into account from a conservation perspective, we could say the key issue is the preservation of the aesthetic experience of the artwork and how the artwork is presented in the space of its exhibition.

As manager of the James Coleman Studio, my responsibilities cover all stages of the artist's practice. These include the pre-production of new artworks, exhibition planning and logistics, catalogue coordination, technical research, on-site installations and ongoing management of the artist's archives.

As the work of James Coleman is recognized as pioneering in the use of audio-visual media in his artworks, preserving the legacy of the artist's work into the future in relation to its media and installation is a key concern at the Coleman Studio. In this respect, we play an active role in all conservation activities and decisions.

Regular studio practice includes the preparation of detailed architectural drawings which offer guidelines as to how particular artworks are to be installed; the studio documentation of past installations; the close management of the artist's audiovisual archive (with dedicated media storage), and keeping updated and informed of current technological developments and new conservation practices.

The aim of conservation should be to preserve the integrity of the artwork as an installation and aesthetic experience. In this light, any installation is itself an exercise in conservation.

In broader terms, the following issues and initiatives might be worthwhile considerations to guide future conservation practice:

— Conservation of knowledge: most of the know-how and experience of artists working in the 1960s, 1970s and 1980s still remains in the hands of individuals – the artists, assistants, technicians, historians, critics and writers. Without urgent action, this wealth of information risks disappearing as people forget, retire and pass away.
— Museum cooperation: international associations could be established with multidisciplinary boards to action specific policies – i.e. the preservation of slide installations. Such collaborative organizations could significantly assist in tackling issues which museums currently face on their own.
— Research funding: vast quantities of knowledge have yet to be transferred, archived or shared, in particular amongst institutions. In addition, new research should be commissioned which focuses on the technical, historical and aesthetic issues of specific audiovisual and installation media.
— Conservation marketplace: an international network or repository could be established to ensure the availability of analogue presentation equipment (slide, film, video, audio). This material, now increasingly obsolete from its original commercial use, remains essential to the preservation of installation artworks. Small private companies could in turn form part of this network or marketplace, fulfilling a shared demand from international museums for servicing, parts, film manufacturing, laboratory processing, and installation services.

Part 5

Right to Age or Time to Change?

[1] Buchloh et al. 2004, p. 24.

'My work isn't ephemeral, it's precarious'

DISCUSSION OF A 'CONSERVATION' STRATEGY FOR *DOPPELGARAGE* BY THOMAS HIRSCHHORN

Maike Grün

Abstract
With the purchase of the 120-square-metre environment *Doppelgarage* (2002) by Swiss artist Thomas Hirschhorn, the Sammlung Moderne Kunst in the Pinakothek der Moderne (Munich) acquired an artwork that presents new challenges to the museum's conservators and curators. Unlike any other piece in the collection, it is rapidly disintegrating right in front of our eyes – primarily due to the immense quantity of packaging tape that knits the artwork together but is not resistant to ageing. Another factor is the size of the artwork: conservation work is thus very time-consuming and will exceed the capacity of the museum in the foreseeable future. 'My work isn't ephemeral, it's precarious' is a striking quotation from Hirschhorn.[1] This chapter discusses content-related, technological and conservation details and their interrelationships, which are used as the basis for a 'conservation' concept. It concludes with a summary of the in-house debate of these issues.

Introduction
Even if Thomas Hirschhorn is not the only artist who uses adhesive tape, it has almost become his characteristic feature because it is such a particularly conspicuous element of his works. It has even earned him the nickname 'Klebeband-Maniac' ('adhesive tape maniac') (Windlin 2006, p. 36). For the first presentation of *Doppelgarage* ❶ ❷ in the Pinakothek der Moderne in 2005, a far-sighted radio journalist commented: 'Hirschhorn's *Doppelgarage* is thought-provoking art in the best sense of the word. In a few years, problem-solving thinking will also be required of conservators at the Pinakothek der Moderne. How brown adhesive tape behaves after a few years, how this *Doppelgarage* can be stored in the depot without falling apart are issues facing the happy owners of a genuine Hirschhorn (Mekiska 2005)'.
The environment *Doppelgarage*, acquired in 2004 by the Sammlung Moderne Kunst, combines numerous special features of contemporary art. This includes the use of materials and processing techniques that are not intended to be long-lasting. The large number of objects – nearly 400 separate parts, from the floor coverings to the fluorescent lights – as well as the sheer size of the artwork has made *Doppelgarage* one of the most voluminous and complex artworks in the collection. For these reasons, this artwork was chosen as a case study for the EU project *Inside Installations* (Grün 2007).

The topics investigated in the case study included the first presentation in the museum, documentation of its assembly and disassembly as well as storage in the depot.
As a continuation of this work, this chapter focuses on the conservation concept, which is a matter of discussion because the artist's opinion on how to deal with the foreseeable ageing differs from the conservation point of view. Symptomatic of this difference in opinion is the adhesive tape that Hirschhorn used extensively and sometimes even painted. During assembly in the Pinakothek der Moderne in 2005, the tape as well as the paint were already showing reduced adhesion. Whereas Hirschhorn wanted a strict replacement and repainting of the adhesive tape, these measures are problematic within a museum context because they would have resulted in extensive renewal or reforming of *Doppelgarage*.
How should this discrepancy be handled? How should an artwork, the material end of which is foreseeable but not intended by the artist, be supervised? How does a conservator deal with an artwork when its sheer size restricts conservation measures?

Artist and artwork

The Swiss artist Thomas Hirschhorn was born in Bern in 1957 and grew up in Davos. From 1978 to 1983, he studied at the Kunstgewerbeschule in Zurich, and then moved to Paris in 1984. He lives and works in the suburb of Aubervilliers. Thomas Hirschhorn is known for his assemblages and installations, 'street altars' and art projects in public areas. The background of his artistic activities is often political. In 2003, he publicly stated that he would no longer exhibit his works in Switzerland owing to the election of the right-wing populist Christoph Blocher into the Swiss Federal Council. He continued with this boycott until 2007 when Blocher failed to be re-elected (Hirschhorn 2007).
Doppelgarage (2002) is a reaction to the events before and after 11 September 2001. The walk-in artwork covers a total area of about 120 square meters and consists of two rooms connected by a passage. Hirschhorn completely furnished these two rooms: the floor is covered with sheets of grey polyvinyl chloride (PVC), and the walls are clad with cardboard painted to look like a wall. Suspended from the ceiling are sixteen fluorescent lamps that set the scene in harsh light. In the first room there are four platforms on which model trains tirelessly circle in landscapes with giant mushrooms. The wall behind is hung with tools. Next to the passage to the second room there is a set of black wooden shelves partially covered with gold foil and carrying lined-up books and work gloves arranged neatly next to each other. The length of the rear room is divided by a cigar-shaped object, approximately eleven metres long, covered in gold foil and resting on wooden sawhorses. To the right of this are a series of twelve objects along the wall that resemble wall fragments. On the opposite side there are four nest-like structures, mounted on wooden supports that are over head height. They are crowned by globes that are almost completely covered with adhesive tape.
Nearly everything in the *Doppelgarage* is covered with tape. The viewer sees brown or colourless-transparent adhesive tape almost everywhere, with a

little white as well. Pin-up girls, advertising signs and texts as well as enlarged copies of text fragments written by the philosopher Marcus Steinweg decorate walls, sculptures and floors. Innumerable picture clippings from news magazines refer to the contextual point of departure of *Doppelgarage*: they include pictures of war scenes from the First Gulf War, demolished Arabic houses and the collapsed World Trade Center. Some of them are closely collaged onto the mushroom landscapes, and there is also one on the end face of each wall fragment. Groups of clippings are attached to brown adhesive tapes hanging like fly catchers from the lamps.

Materials and production

Hirschhorn is often asked about his choice of 'banal and ephemeral materials such as cardboard, packing tape, aluminium foil [and] Plexiglas' (Buchloh et al. 2004, 15). His answer: 'What I've got around me is some packing tape; there's some aluminium foil in the kitchen and there are cardboard boxes and wood panels downstairs on the street. That makes sense to me: I use the materials around me. These materials have no energetic or spiritual power. They're materials that everyone in the world is familiar with; they're ordinary materials. You don't define their use in advance; they aren't loaded. There's no doubt, no mystery, no surplus-value'.

Doppelgarage was fabricated in Thomas Hirschhorn's 700-square-meter studio in Aubervilliers with the help of eight assistants. His studio is well equipped: 'I have all the tools to do my work, including a colour and black/white copier, a computer, fax, telephone'.[2] He does not use the services of other companies. He communicates his ideas to his assistants using 'sketches, but above all, I communicate my thoughts in words'. But he doesn't leave his assistants any creative freedom: 'My instructions are concrete and very precise' and 'it often happens that I intervene in order to give my ideas shape'.[3] Hirschhorn also selected the pictures and text fragments personally. This chapter deals with the groups of materials used in Doppelgarage that have a decisive impact on the conservation concept owing to their nature.[4]

The adhesive tape

'I want to connect [the items], I must connect them – with force, with decisions, with assertion', said Hirschhorn. 'I must make the decision, and adhesive tape is an aid. I can stick them together properly. The entire installation is nothing other than an oversized collage'.[5]

In *Doppelgarage*, Hirschhorn used the adhesive tape for very different functions. As a construction element invisible to the viewer it holds together the cardboard elements that make up the sculptures. It is used as a visual link where the parts of the wall are butt-jointed or the PVC sheets overlap. The adhesive tape does not sit smoothly and taut in these regions, but is creased and in several layers. It has been applied in thick layers at the interfaces between the sculptures and the floor so that it acts rather like a base. Hirschhorn used it as a modelling material for the gills of the oversized mushrooms ❸. For the enlarged copies of the text fragments, for example, those stuck to the floor, it acts as a frame and a fastening material at the

2 Thomas Hirschhorn in a questionnaire by Maike Grün, e-mail response from 19 August 2005.

3 All information in this section: ibid.

4 However, a description of all groups of materials is beyond the scope of this article. Therefore, issues such as the conservation of all walked-on elements of the artwork, e.g. the PVC flooring, are not discussed.

5 TV programme *Stations*: Thomas Hirschhorn, www.3sat.de/kulturzeit/specials/140193/index.html, [accessed 18 December 2009]

❶ *Doppelgarage* on view at the Pinakothek der Moderne, 2005. Front room. PHOTO Bayerische Staatsgemäldesammlungen (Haydar Koyupinar), Munich; COPYRIGHT Bayerische Staatsgemäldesammlungen; COPYRIGHT VG Bild-Kunst, Bonn, 2010. ❷ *Doppelgarage* on view at the Pinakothek der Moderne, 2005. Back room. PHOTO Bayerische Staatsgemäldesammlungen (Haydar Koyupinar), Munich; COPYRIGHT Bayerische Staatsgemäldesammlungen; COPYRIGHT VG Bild-Kunst, Bonn, 2010. ❸ Detail of a landscape platform with collaged magazine pictures. The transformer for the model railway lies in the middle of the picture, embedded in adhesive tape. PHOTO Bayerische Staatsgemäldesammlungen (Haydar Koyupinar), Munich; COPYRIGHT Bayerische Staatsgemäldesammlungen; COPYRIGHT VG Bild-Kunst, Bonn, 2010.

❹ Oversized mushroom whose gills have been modelled with adhesive tape. PHOTO Bayerische Staatsgemäldesammlungen (Haydar Koyupinar), Munich; COPYRIGHT Bayerische Staatsgemäldesammlungen; COPYRIGHTVG Bild-Kunst, Bonn, 2010.

same time. The walked-on text fragments on the floor and the collaged magazine pictures are sealed with overlapping strips of transparent adhesive tape ❹. The nest-like sculptures are completely covered with brown adhesive tape that provides colour and texture. The 'fly catchers' are made of 1.5-metre-long suspended strips of brown adhesive tape to which several magazine pictures are attached, that is, the tape is the object in this case (Ratajczak 2005, 6ff).

Hundreds of rolls of adhesive tape – brown, colourless/ transparent, and a little white – were used in *Doppelgarage*. Hirschhorn said he ordered them from a packaging material manufacturer without any particular specifications regarding the type.[6] He also used adhesive tape purchased locally by himself or his assistants during the respective assembly of *Doppelgarage*.[7] The manufacturers' names and trade names are not known and the artist does not consider them relevant: 'the brown, extremely widespread adhesive tape is universal. It is not the exact shade that is important but a similar colour (different grades and makes, different countries of origin), the differences thus emphasize their universality'.[8]

Packaging tapes essentially comprise a colourless transparent carrier foil and an adhesive coating compound (Johnston 2007, Bode 1999, O'Loughlin et al. 1992). Depending on the colour of the final tape, white or brown pigments are either added to the adhesive compound or omitted, in the case of a colourless transparent tape.

The presence of different shades of brown and also visual differences between transparent tapes suggest that a number of different products were used in *Doppelgarage*. Common carrier foils are made of polypropylene (PP) and polyvinyl chloride (PVC). About 60 to 65 per cent of the PP foils are coated with an acrylic-based adhesive, the rest with a hot melt.[9] In contrast, PVC foils are all coated with adhesives based on natural rubber. The generally somewhat more expensive PVC/rubber tapes are regarded by the packaging industry as having a higher quality because the foil is thicker and thus more stable. Manufacturers and dealers generally give a warranty period of one year.[10]

Five random scientific analyses of brown tape revealed that three of the samples had a polypropylene carrier foil and an acrylic adhesive. Two further samples of a light-brown tape and one white tape proved to have a PVC carrier with a rubber-based coating (Pfenninger et al. 2006, Baumer et al. 2010.)[11] The adhesive layer on the white tape was already heavily degenerated and was no longer adhering.

Painted adhesive tape

Numerous objects in *Doppelgarage* are painted. For example, the wall fragments are made of several cardboard parts joined together with brown adhesive tape. This is completely covered with a layer of white interior wall paint. The masonry is imitated by grey lines. The oversized mushrooms have a basic structure of cardboard that is completely covered or over-modelled with brown adhesive tape that was then spray-painted. Spray adhesive was used as a bonding agent.[12]

6 See note 1.

7 Exhibition locations of *Doppelgarage*: Berlin, Galerie Arndt & Partner (14 December 2002-8 February 2003); Frankfurt/n, Schirn Kunsthalle (10 December 2003-11 January 2004); Munich, Pinakothek der Moderne (3 March 2005-29 January 2006).

8 See note 1.

9 Information kindly provided by telephone on 11 January 2010 by Mr Griese, Griese Klebebandvertrieb, Herzebrock-Klarholz, Germany.

10 See note 9.

11 This report describes comparative analyses of two hot-melt adhesive tapes kindly provided directly by the manufacturer, WBV, Oelde, Germany: 'The carrier foil is made of PP, whereas the adhesive contains latex as well as an aromatic polymer (e.g. polystyrene). It could also be a styrene-butadiene copolymer'.

12 Spray adhesive, trade name '3M', see note 1.

[13] See note 1.

[14] Thomas Hirschhorn in a conversation with Maike Grün during assembly work in the Pinakothek der Moderne, March 2005.

Printed paper elements: text fragments and magazine pictures

The text fragments are printed on commercial copier paper. Their size is varied: Hirschhorn incorporated snippets of only a few centimetres to several DIN A3-sized pages stuck together. Some of the words or texts have been greatly enlarged with the copier. Thomas Hirschhorn cut out the magazine pictures personally and added them directly to *Doppelgarage* or he used copies had enlarged himself on a colour copier.

Model railways

Each landscape platform carries an electric model locomotive of the US railway companies 'Amtrak', 'Santa Fe', 'Union Pacific' and 'Chicago North Western' that continuously circulates with its passenger coaches. An assistant bought the railways from the US brand 'Athearn' according to Hirschhorn's instructions specifying that he wanted four different US railway companies.[13]

Conservation supervision of Doppelgarage to date

During the eleven-month presentation of *Doppelgarage* in the Pinakothek der Moderne, there were already several conservation interventions for various reasons, including technical malfunctions, theft and signs of wear caused by the public. One example of this is the maintenance and replacement of the model railways. Following Hirschhorn's order that 'the railways must run, run, run',[14] an extensive maintenance and reordering programme was implemented. This ensured that the railways could continue operating continuously during the museum's opening hours. Another example is the replacement of a text fragment with the inscription 'Gott ist tot' ('God is dead'). It had originally been mounted on a wall fragment and had obviously been torn off and stolen. The wall fragment was reinstated using a copy made by the conservators based on photographs of the original artwork. In addition, individual tools and books that had been stolen were also replaced. These measures were possible owing to the extensive photographic and written documentation that had been prepared by conservators after the work was purchased. The transparent adhesive tape stuck on the floor and joining the various PVC sheets was also replaced. Wear and tear caused by visitors had destroyed the carrier foil and carried dirt into the adhesive layer so that it had become rather unsightly. Some damage and age-related changes were monitored during the presentation period at the Pinakothek der Moderne without conservation intervention. This included reduced adhesion of the paint on the adhesive tape: there is severe flaking, particularly on the adhesive tapes on the wall fragments (❺ ABOVE). This affects a length of tape amounting to about one hundred metres in length. This flaking is not really surprising because the non-polarity of the adhesive tape makes it an unsuitable surface for wall paint. The large mushrooms exhibit the same problem: although spray adhesive was used as a bonding agent, all mushrooms show insufficient adhesion and paint loss; one mushroom on the Amtrak platform is particularly affected because the spray adhesive seems to have been forgotten here (❺ BELOW). This mushroom has already been treated several times, the last treatment was carried out in 2005 by one of Hirschhorn's assistants during assembly in the Pinako-

❺ Flaking paint on a wall fragment [ABOVE] and on an oversized mushroom [BELOW]. PHOTO Bayerische Staatsgemäldesammlungen (Maike Grün), Munich; COPYRIGHT Bayerische Staatsgemäldesammlungen; COPYRIGHT VG Bild-Kunst, Bonn, 2010.

❻ State of a nest-like element in 2005 [ABOVE] and 2010 [BELOW]: The central bundle of adhesive tape has become detached. PHOTO Bayerische Staatsgemäldesammlungen (Haydar Koyupinar, Maike Grün), Munich; COPYRIGHT Bayerische Staatsgemäldesammlungen; COPYRIGHT VG Bild-Kunst, Bonn, 2010.

thek der Moderne.[15] The adhesive tape also shows varying degrees of reduced adhesiveness in several places, namely to the object or between tape layers. With respect to the overall state of *Doppelgarage*, all this damage and the age-related changes are not particularly significant yet.
Random opening of a few depot boxes in March 2010 revealed two cases of serious damage: one of the large mushrooms had bent over, and on one of the 'nests' three of the tape bundles that had fixed the nest to the framework had lost their adhesiveness and the nest had dropped to a lower position ❻.

Preliminary considerations for a conservation strategy

One of the limitations associated with the formulation of a conservation strategy proved to be the fact that predicting the ageing of *Doppelgarage* is, by definition, based on hypotheses. The main reason for this is that the exact composition of the materials used in *Doppelgarage* is unknown. In the case of the packaging tape, rubber-based adhesives are known to undergo rapid ageing, which also applies to hot melt coatings, but to a lesser extent: these adhesive coatings become brittle and eventually crumble. Acrylic tapes are regarded as being more resistant to ageing. This sort of tape may retain its adhesiveness for ten years, or even longer, if it is not subjected to mechanical loads.[16] However, not only the adhesive layer is susceptible to ageing, the carrier foil can become brittle and eventually tear.
The intensive illumination inside *Doppelgarage* significantly affects ageing, which thus depends on the frequency with which the work is presented. Each of the 16 lamps is fitted with two fluorescent tubes.[17] The distance between the fluorescent tubes and the artwork elements differs. The 'fly catchers', which are directly attached to the lamps, are exposed to several thousand lux. Even at considerably greater distances from the light source, the values lie well above the generally recommended levels in a museum. The UV values are approximately 100µW/lumen, which is also well above the recommended values (Pfenninger 2005).
The prediction formulated below for the *Doppelgarage* is based on an empirical conservation estimate. Thus all adhesive tapes will lose their adhesiveness or sightliness at a certain point in the future, some earlier (rubber), others later (acrylic). Adhesive tapes subjected to high mechanical loads, that is, under tension, will lose their adhesiveness more quickly than non-loaded tapes. Parts of the *Doppelgarage* that are exposed to higher levels of light will age more quickly than those in shadow. The printed paper elements that were attached with a transparent adhesive tape may be affected by optical shifts. Whereas the transparent adhesive tapes become more obvious due to a higher degree of yellowing, particularly on light-coloured backgrounds, the coloured prints may bleach and become illegible. Furthermore, lignin-containing papers will become brown and brittle (ibid.).
It can be expected that layers of wall paint and sprayed paint on adhesive tapes will continue flaking off. At an advanced stage, for example, the brown adhesive tape on the walls will be exposed and compete visually with the grey lines imitating masonry.
In summary, ageing of all material groups can be expected, albeit at different rates, due to the various types of materials as well as the different loads and

[15] See Ratajczak (2005, 13). The assistant removed the raised flakes with a brush and sprayed a layer of adhesive over the mushroom. This was followed by several layers of spray paint.
[16] See note 9.
[17] General Electrics F36W/54, Daylight 2350 Lm, TS 183.

levels of illumination. This should be taken into account if one of the material groups is to be meticulously restored.

During assembly in the Pinakothek der Moderne, Thomas Hirschhorn and the conservators discussed how he regarded ageing of the adhesive tape and the flaking paint. He answered that the paint would have to be resprayed or repainted and the adhesive tape replaced; *Doppelgarage* will live forever.[18] He accepts that the magazine pictures will fade.[19] Thomas Hirschhorn does not allow stability issues to guide his choice of materials: 'As an artist, I cannot select my materials on the basis of a pseudo lifetime. As an artist, I have solved this issue, but the museum has not yet resolved it'.[20]

This means that a basic decision must be made as to whether *Doppelgarage* is an artwork that is intended to be a unique piece or whether it is a work in which the concept, the idea, is the essential factor and the materials play only a subordinate role. The problem is that the statements made by the artist contradict the choice of materials and design of the artwork. Classification as a unique specimen is supported by the individual design by the artist, for example, he gave his assistants extremely precise instructions without leaving them any creative freedom and also because he selected the text fragments and pictures and enlarged them as he saw fit. On the other hand, Hirschhorn said that the materials could be replaced if they were damaged or lost[21] and his work would live forever (in spite of the very short-lived nature of the materials that he himself chose). This indicates a concept-based artwork rather than a unique specimen (Luber et al. 2011).

In addition to this basic issue, the feasibility and meaningfulness of conservation and restoration measures in agreement with Hirschhorn's wishes were doubted: replacement of large areas of adhesive tape by a visually equivalent but more stable medium would be technically very complex because the adhesive tape is the 'glue' holding the overall artwork together. It would have to be completely taken apart and rebuilt to look like the original. And if the flaking paint were to be replaced by applying new paint layers, it would not solve the basic problem because the reason for the adhesion problem lies in the incompatibility of the paint and the carrier so that consolidation of the paint layer would be a very time-consuming and never-ending treatment of the symptoms. For the first time in the history of conservation at the Sammlung Moderne Kunst, economic considerations must come before the conservation of an artwork; this is due to the sheer size of *Doppelgarage* and the wide scale and deeply impacting extent of the conservation issues. The conservators and the museum are confronted with the question of how much time and/or money they want to spend in order to preserve this one artwork without losing sight of the rest of the collection.

Conservation strategy

The current version of the conservation strategy represents a compromise between the aforementioned goals and deliberations. On the one hand, account should be taken of the wishes of both the artist and the museum to present *Doppelgarage* for as long as possible in the original state. On the other hand, it is clear that *Doppelgarage* cannot be preserved for the long term by conservation techniques.

[18] Thomas Hirschhorn in an interview with Maike Grün on 1 March 2005.

[19] Thomas Hirschhorn in a questionnaire from Maike Grün, e-mail response on 27 November 2006.

[20] Thomas Hirschhorn in a lecture at the Pinakothek der Moderne on 1 July 2006, transcript by Maike Grün.

[21] Hirschhorn gave the Doerner Institut a batch of replacement pictures that could be used to replace damaged or lost pictures if the need arose. He organized the pictures into groups: 'sex', 'demolished houses', 'war', 'resistance', 'Afghanistan', 'Iraq' and '9/11'.

The conservation strategy is divided into four points

Conservation of the basic features

The basic features are regarded as the elements and objects that are essential for the completeness and readability of *Doppelgarage*. They will be restored or replaced, if necessary, to ensure that they are preserved. Examples of this are the aforementioned lost objects, such as tools and books, the text fragment 'Gott ist tot' as well as the defective model railways. The bent-over mushroom and the sagging 'nest' also belong in this category.

Acceptance of systematic ageing

Systematic ageing refers to the type of ageing caused by Hirschhorn's choice of materials and work techniques. Its progress is currently not important for the overall appearance of *Doppelgarage*. This includes ageing processes that have a superficial aesthetic impact, such as the loss of adhesiveness of non-load-bearing adhesive tapes, yellowing of transparent adhesive tapes and copier paper as well as bleaching of magazine pictures. Currently, this also includes the loss and adhesion deficits of the painted layers on the adhesive tape, particularly because there is no conservation technique to avoid incompatibility between the carrier foil and the paint layer.[22]

Preventative measures

Preventative measures should delay the degradation processes for as long as possible. This includes optimising depot packaging by fitting additional supporting elements. The illumination system inside the artwork will be modified using UV-absorbing foils to considerably reduce the invisible, high-energy UV fractions (Pfenninger 2005). In contrast, the amount of visible light cannot be reduced because it is part of the artwork and the impression in the room would be too affected. The extreme lux values during the presentation phases will thus remain unchanged. However, the next time *Doppelgarage* is presented, it should be checked whether the number of visitors would warrant the installation of movement detectors so that the artwork is only illuminated when necessary.

Limits of conservation intervention

There is a certain point when ageing has progressed to such an extent that conservation measures are no longer possible because the artwork would be too greatly compromised, the required time is no longer economically viable or aesthetic limitations due to systemic ageing become overwhelming. The decision about when this point is reached must be taken by those responsible. Discussions should be started on whether or how knowledge of the pending collapse will affect the museum's handling of the artwork.

In-house discussions and conclusion

During an intra-museum meeting on 17 March 2010, the conservation concept was presented to 20 colleagues from the conservation, art history and science departments. As expected, a consensus was reached for the first three points, but the last triggered a lively discussion. Opinions differed as to whether *Doppelgarage* should be classified with respect to its materiality:

[22] At present, Anna Comiotto, Berne University of the Arts, Switzerland, is working on a method of introducing oxygen into non-polar surfaces by means of plasma implantation with the aim of producing permanent adhesion of paint systems. It is planned to use *Doppelgarage* as a case study in this research.

as a concept artwork (in which the material plays a subordinate role because it is renewable), as a unique piece (in which the original material carries the statement) or whether it can be regarded as a performance (in which its ephemeral nature plays an integral role). Hirschhorn's statement that *Doppelgarage* will live forever is a central topic of these considerations, along with his choice of materials and his close and personal participation in the creation of the artwork.
An open point remains regarding which role Thomas Hirschhorn should play in decisions or in active measures. The discussion left many questions unanswered and must be regarded as the starting point of a debate. Furthermore, there is a general problem with which the Sammlung Moderne Kunst will be confronted increasingly often: which strategies 'happy owners' can and must develop to deal with the degradation of their artworks.

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Remaking Artworks: Realized Concept versus Unique Artwork

Kerstin Luber and Barbara Sommermeyer

Artists have finally been accepted as idea men and not merely as craftsmen with poetic thoughts. Alberro (2003)

Abstract
In order to preserve modern and contemporary art with its enormous diversity of materials and intentions, those responsible – conservators, art historians, owners – often need to find new approaches. One of these approaches will be discussed in more detail in this contribution: remaking – the partial or complete exchange of material in an irreparably damaged artwork, whereby the remade object replaces the previous object and is regarded as the original.

Introduction

The possibility of remaking – the exchange of material in an irreparably damaged artwork, whereby the remade object is regarded as the original – will be illustrated in this chapter by studying the case of *Plattenbogen für eine Wandöffnung 100/3/SNA*, an artwork created in 1991 by German artist Reiner Ruthenbeck.[1] *Plattenbogen* is a slightly domed, 100 centimetre x 100 centimetre aluminium plate covered in semi-matt black paint. An accident caused scratches and scrapes that would have remained visible after restoration because such surfaces are difficult to repair. However, the artist always wanted an absolutely perfect surface for this artwork. After a detailed examination, further research, and an interview with the artist, the artwork was completely remade. This remake is now regarded as *Plattenbogen für eine Wandöffnung 100/3/SNA* [2], the unique, original artwork authorized by the artist. The previous original, the damaged Plattenbogen, is no longer regarded as one of the artist's works ❶.[3]

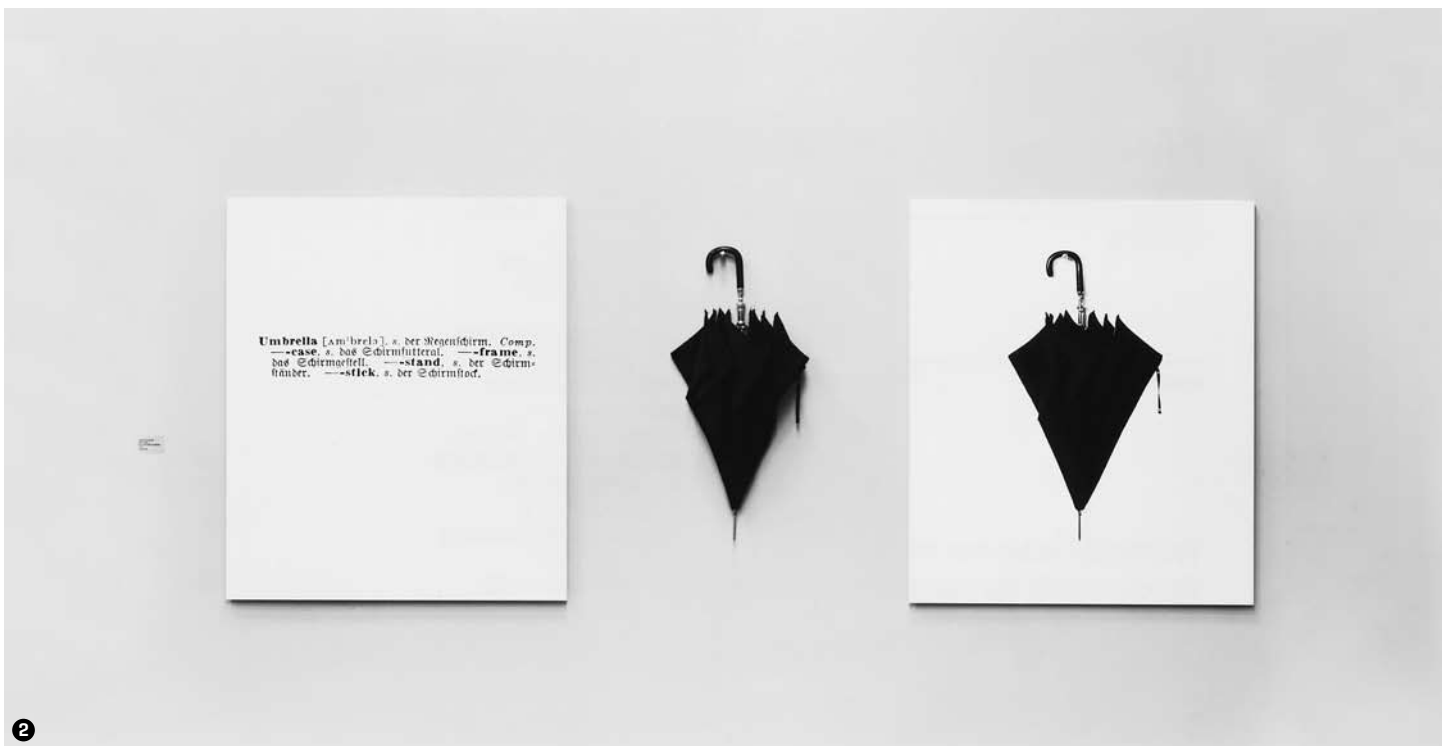
Remaking was possible in this case because the irreparably damaged object was not conceived as a singular, unique and individually designed artwork such as an old masterpiece. In contrast, Ruthenbeck was highly interested in his imagination, his concrete idea, the concept of his artistic work.

Ruthenbeck himself stated: 'This is conceptual work. The concept itself is the main work. The plate is the embodiment of the concept'.[4] 'Because the work is not a signed painting but a sculptural concept work, its fabrication can

1 This chapter is based on a diploma thesis by K. Budde on the subject of remaking contemporary works of art in which *Plattenbogen für eine Wandöffnung 100/3/SNA* by Reiner Ruthenbeck, (1991, coll. Hamburger Kunsthalle) was used as an example.

2 Reiner Ruthenbeck also emphasized in an interview on 16 December 2006 that he would not accept any indications that the artwork had been remade at the presentation of the new *Plattenbogen* and that it should still be dated as 1991. Reiner Ruthenbeck: 'Bestimmte Werke sind in bestimmten Lebensabschnitten entstanden und typisch dafür. Wenn dann an einer Arbeit steht, dass sie 2006 entstanden ist, dann denken die Besucher, dass ich mich in der Zeit damit beschäftigt habe. Das stimmt dann ja gar nicht (…)' ('Certain artworks were created in certain periods of an artist's life and are typical of these periods. If the work is dated 2006, the viewer believes that I was working with the object at that time. But this isn't true (…)'.

3 The previous *Plattenbogen* is now used as a reference for conservation regarding quality of fabrication.



❶ Reiner Ruthenbeck. *Plattenbogen für eine Wandöffnung 100/3/SNA*. 1991. Displayed at the Hamburger Kunsthalle/ Gallery of Contemporary Art in 2007. PHOTO Kristina Holl COPYRIGHT Hamburger Kunsthalle COPYRIGHT VG BILD-KUNST, Bonn, 2010. ❷ Joseph Kosuth. *One and Three Umbrellas*. 1967. Displayed at the Hamburger Kunsthalle / Gallery of Contemporary Art in 1997. PHOTO Elke Walford COPYRIGHT Sammlung Elisabeth und Gerhard Sohst in der Hamburger Kunsthalle COPYRIGHT VG BILD-KUNST, Bonn, 2010.

be completely anonymous. Only the specifications are important: black, semi-matt, perfect'.[5]

The materials that were used to realize the concept are of secondary importance compared to the concept itself. They are a means to an end: to make the concept perceptible to the senses. Ruthenbeck´s method of working is thus not the design of material but the design of a concept.

Conceptual art

The use of artistic concepts was introduced into the visual arts in the 1960s by concept or conceptual artists such as Lawrence Weiner, Douglas Huebler and Joseph Kosuth (Marzona 2005) ❷.
This art form was very theoretical and its aim was to subject art, its conditions and art practice to a critical analytical revision (Marzona 2005).
In the 1960s, the status of the original, the author and the unique character of artworks was addressed in the visual arts as a whole (Metzger 1995). Strategies were developed to liberate the object from direct intervention by the artist and to allow anonymity in its production without any 'artistically creative' components. The status of the original as a unique artwork was challenged, for example, by multiples (exhibition in Wallraf-Richartz-Museum Cologne 1968), appropriation art (publications by Römer 1998, 1999 and 2001) and also by immaterial conceptual art (publications by Marzona 2004 and 2005) so that the definition of an original had to be expanded.
In conceptual art, the concept and the materialization are separate entities and are consequently evaluated so that the concept can be regarded as an independent artwork. The concept is already an artwork, irrespective of whether it remains unrealized or is used as the basis for the subsequent materialization. Accordingly, in 1968, Lawrence Weiner stated in his 'Declaration of Intent':

> 1. The artist may construct the piece. / 2. The piece may be fabricated. / 3. The piece need not be built. / Each being equal and consistent with the intent of the artist, the decision as to condition rests with the receiver upon the occasion of receivership (Siegelaub 1969).

This statement implies that in conceptual art, the physical realization is not the artwork, but the concept behind it. Therefore, this is actually immaterial art, although the concept is often executed or materialized so that the viewer can get a better understanding of the idea behind the work (Marzona 2005).
This idea of working with concepts and their materializations is used by many artists nowadays, including Reiner Ruthenbeck: 'I am too sensory-oriented not to work with materials. However, the basic idea that materials do not have to be used in order to create art is very important to me' (Drahten 1988).[6]
Ruthenbeck's work methodology can be regarded as concept-based art. The terms conceptual art and concept art do not apply here because they are describing a closed art movement of the 1960s, the theoretical approach of which Ruthenbeck did not agree with; he used only the method of working with concepts. The concept can be fixed explicitly in writing, drawings or

[4] All translations in this text were made by Gillian Scheibelein. Reiner Ruthenbeck: 'Dies ist Konzeptarbeit. Das Konzept ist die Hauptarbeit. Die Platte ist die Ausführung des Konzepts'.

[5] Reiner Ruthenbeck: '(...), weil die Arbeit keine Malerei mit Handschrift darstellt, sondern eine skulpturale Konzeptarbeit, deren Anfertigung völlig anonym sein kann. Es geht nur um die Vorgaben: schwarz, seidenmatt, perfekt'.

[6] Reiner Ruthenbeck: 'Um ganz aus dem Stofflichen herauszugehen, bin ich zu sinnlich. Aber die Grundidee, dass man Materie nicht unbedingt benutzen muss, um Kunst zu machen, ist für mich sehr wichtig'.

similar. Likewise, it can also exist 'only' in an implicit form in which the materialization of the artwork carries the information of the concept: the materialized artwork is regarded as information that illustrates the intended idea (Marzona 2004). The decisive fact is that the 'actual' artwork is the concept – and not its material execution – even if the concept is only discernable when it has been materialized.

Focusing on the concept also addressed the status of the artist as a 'creative entity'. As a consequence, in many cases the artist no longer fabricates the artworks but someone else who carries out the work according to the artist's instructions.[7] The fabrication process is thus separated from the artist: 'I am the architect, the assistant is the engineer' (Scheidemann 1999).

As a consequence, the material loses importance because it no longer exhibits the 'ingenious' traces left by the artist during its fabrication. The underlying concept, the idea, becomes the artist's characteristic style. This means the material itself is replaceable. For example, in his work *Capribatterie*, Joseph Beuys did not use an irreplaceable lemon, a unique original, he worked with the idea 'lemon' or the concept 'lemon'. The respective object acts as a temporary placeholder, a temporary original with the function of communicating the properties and associations linked to the object ❸.

What is an original?

The noun 'original' derives from the Latin *origo*, which means origin, source, first instance (Janis 2005, *Meyers Großes Taschenlexikon* 2001). The adjective 'original' means genuine, own, authentic (*Zeit-Lexikon* 2005) or even unique (*dtv-Lexikon* 1990). The term 'originality' thus stands for authenticity as well as singularity, peculiarity and characteristic (*Meyers Großes Taschenlexikon* 2001, *Zeit-Lexikon* 2005).

The traditional definition of an original (fabricated by the artist him/herself, singularity of the work) (Hamann 1980) was irrelevant for a long time. Usually, the aim was not the creative fabrication of new motives, but agreement with a topic or a previous execution so that singularity of the artwork was not intended in most cases. The similarity of the artwork was determined by iconography, whereby the understanding of the viewer was based on the recognition of people and the context. Icons become meaningful only through the greatest possible similarity with what it is trying to represent.

During the Middle Ages, artistic work, which was regarded as a craft, was always executed by a group of people: the panel was prepared by the panel maker, the base layer was applied by the primer, gold leaf was prepared and applied by the gilder and then the artist's assistants often completed large parts of the painting. In the last step, the master artist completed the final touches (Deecke 1999). Master artists also signed works by their pupils as a sign of approval (Locher 1970). The notion of an original is essentially meaningless with respect to the way art and copyrighting was comprehended at that time.

The notion of an original as it is understood in this context today arose only at the beginning of the nineteenth century (Hamann 1980), around the time photography was developed (Locher 2001). Definition of an original is only necessary in this context because it becomes important to distinguish it

[7] In an interview conducted on 16 December 2006, Reiner Ruthenbeck was asked whether his works should be exhibited so that the viewer knows that they were not fabricated by him personally: 'Es ist ja nie von mir gemacht worden. Alles andere wird zu kompliziert. Es ist wichtig, wann die Idee aufkam. Normalerweise macht man es so, dass das Ausführungsjahr bezeichnet wird, obwohl es besser wäre, wenn das Jahr, in der das Konzept aufkam, benannt würde' ('I never make them. Everything else is too complicated. The time when the idea arose is important. Normally, the year of execution is given, although it would be better to state the year in which the concept was created').

[8] A work of visual art is characterized by three essential features: it must have an intellectual content, the concept must have a material embodiment and the individuality of the creator must be discernable. The intellectual content can be described as the artistic idea and the intention (Hamann 1980, p. 38). 'Embodiment' means that the artwork is in a visually perceptible form. However, it does not have to be durable. Hamann draws the conclusion that the artistic concept must be followed by a physical product' (Hamann 1980, p. 38). However, he does not provide a definition of a physical product, and therefore it is not clear whether this applies to materialization of the concept or whether a certificate

from a reproduction. The question of originality is only relevant when the main emphasis is on the artist's personality, creativity and individual signature (Hutter 1980).

From a legal point of view, the original was initially defined as the first execution or performance of the artist's own work that had a certain creative design (Hamann 1980). On the other hand, Schmidt, a legal expert, did not limit this to the individuality of the creator, but extended it to the individuality of the design (Hamann 1980). The notion of an original thus also included artworks fabricated by someone other than the artist. Hamann, another legal expert, defined an original as any work of the visual arts that has been embodied for the first time by an artist in such a way that this person can be regarded as the creator (Hamann 1980).

Thus, according to Hamann's definition, there are three characteristic features: existence of a work of visual art[8], fabrication of the artwork by the artist and first embodiment.[9]

But this definition is also unsatisfactory because this would mean, for example, that multiples are not originals. However, there is a consensus that multiples can be regarded as 'a series of originals'. In this case, the concept of the first embodiment of the idea behind the work does not apply, rather numerous embodiments as a consecutive series: Thus multiples are not regarded as a hundred originals but as one original with a hundred embodiments. Or in other words, every work is based on one idea, but is materialized in a hundred versions (Vatsella 1997).

The definition of an original has also been revised and expanded since the 1960s by various art forms such as pop art, appropriation art and conceptual art, particularly with respect to the last two criteria: fabrication by the artist and first embodiment (Römer 1999).

As in insight regarding the definition of an original: 'Just like there is no conclusive definition of what constitutes "art", there is no eternally valid definition of an original' (Deecke 1999).[10]

Can a concept be regarded as an original?

According to Hamann's definition, a concept in concept-based art does not constitute an original because the mandatory criterion of physical embodiment excludes the pure 'concept status' (Hamann 1980). Which is why Mayer, another legal expert, extended the definition of an original in 1984 as follows: 'An original is always the form in which an idea is realized, a direct result of the creative process. The key criteria are thus the content of this idea, the conception of its realization and the conditions of the necessary material route' (Jöhnk 1999).[11]

According to Mayer, this includes independence from the person fabricating the artwork in those cases in which the artist commissions someone else to carry out the work. He also emphasized the possibility of having several equal originals of one edition or of multiples. Mayer also regards materialization of the artwork as being unnecessary for it to be an original (Jöhnk 1999). In this context, this definition also alters the role played by the artist: The physical artwork is represented by an idea. The artist swaps the social role of a 'genius' with that of an inventor, the ingenious 'creator' with that of a thinker

can fulfil this criterion. There are also differences of opinion concerning the individuality of creator. According to the conventional point of view, the creator's individuality must be discernable in the work, as perceived by an artistically untrained person.

9 The definition of a copyrightable work already requires a physical materialization of the artistic concept. According to Hamann's third criterion for defining an original, this must be associated with the first embodiment of the fabricated object (Hamann 1980, p. 45f).

10 'Genauso wenig, wie es eine endgültige Definition von "Die Kunst" gibt, so wenig gibt es eine ewig gültige Definition des Originals'.

11 'Original ist immer die Gestalt, in der sich eine Idee verwirklicht, ein unmittelbares Ergebnis des Schaffensprozesses. Bestimmend sind damit der Inhalt dieser Idee, die Konzeption ihrer Verwirklichung und die Bedingungen des notwendigen materiellen Weges'.

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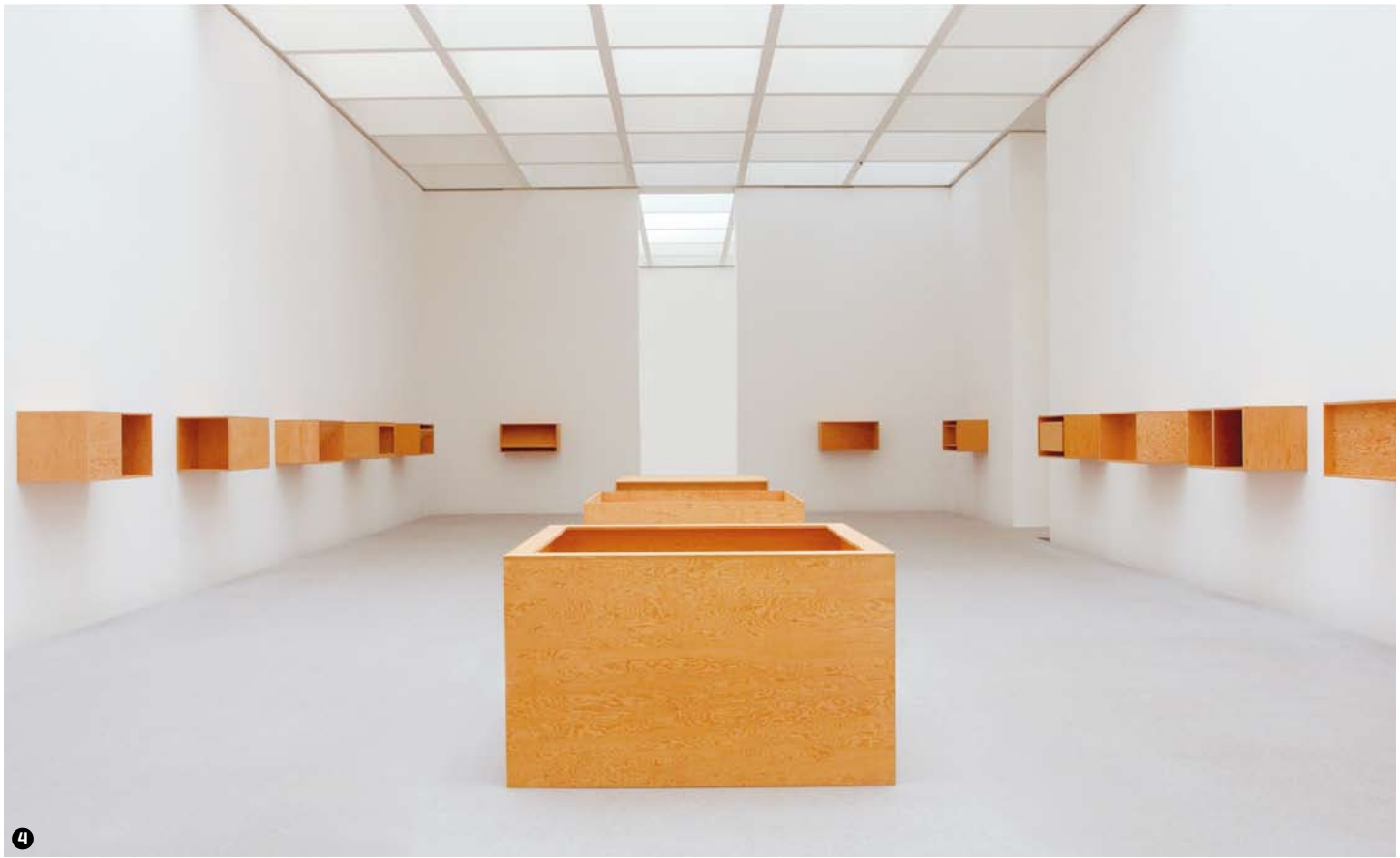
❸ Joseph Beuys. *Capribatterie*. 1985. Bayerische Staatsgemäldesammlungen. PHOTO Sibylle Forster. COPYRIGHT Bayerische Staatsgemäldesammlungen. COPYRIGHT VG Bild-Kunst, Bonn, 2010 ❹ Donald Judd. *Untitled, 16 unit wall-boxes*. 1978. and *Untitled [3-teilige Bodenarbeit]*. 1978. Bayerische Staatsgemäldesammlungen. PHOTO Sibylle Forster. COPYRIGHT Bayerische Staatsgemäldesammlungen. COPYRIGHT Art Judd Foundation. Licensed by VAGA, NY/VG BILD-KUNST, Bonn, 2010 ❺ Carl Andre. *32 Bar Square Fugue on 4 Ancient Metals*. 1988. Bayerische Staatsgemäldesammlungen. PHOTO Haydar Koyupinar COPYRIGHT Bayerische Staatsgemäldesammlungen. COPYRIGHT VG Bild-Kunst, Bonn, 2010.



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(Block 1999). Thus the definition of an original also applies to immaterial concepts. In concept-based artworks, the concept thus has the status of an original; materialization of the concept only then participates in the original status of the concept when it is intentionally carried out and thus authorized by the artist.

When can an artwork be regarded as being concept-based?
Decisive for the assignment of an artwork to concept-based art is the specific intention of the artist as to whether the artwork is regarded as a unique object or a materialization of a concept.
An artwork is not concept-based if it has been individually created. An individually created artwork is produced as a singular work, which implies its degradation and transitory nature. In addition, the newly fabricated work cannot adequately replace an individualized artwork or a unique object.
From the technical point of view, the individual creation is reproducible in most cases[12]; however, an original and 'reproduced' object are not equal from the aesthetic point of view (Goodman 1998). Aesthetic differences between the original and the copy always exist, even if they are not recognisable as such at first sight; the viewer can very quickly spot any differences in good lighting and/or with more experience. However, since even the smallest differences can be very important for an artwork, a copy that appears to be identical cannot be regarded as equal from the aesthetic point of view (Goodman 1998).
The individual design of an artwork is created by the characteristic style, the signature or any other form of individualization. The use of materials with a unique status can also individualize an artwork. A unique status can be conferred, for example, by the artist's signature or a serial number of a series on the object itself. An industrially fabricated object can also be individualized by a signature or numbering on the material.
The fact that an artwork can be easily reproduced is not enough for it to be regarded as concept-based, renewable art. Consequently, only the artist's intention is decisive for such a classification. Therefore particularly careful judgement is required for art forms such as conceptual art and minimal art, in which anonymous fabrication and reproducibility are often emphasized (Marzona 2004). In this case, the artist's intentions are often simplified and it is assumed that the artworks can simply be replaced if they are damaged. However, under no circumstances can admissibility of remaking the artwork be directly inferred from its reproducibility. For example, Carl Andre, who works with very reduced and easily reproducible forms, distanced himself from one of his artworks on finding out that it was a copy (Scheidemann 1999). Conversely, the artist Donald Judd expressly allows remaking:
'I hereby grant G.P., his successors and assigns the right to reconstruct [meaning: to remake; the authors] the work if it is ever dismantled, destroyed, stolen or lost, provided that this is done by reference to, and in strict and exact compliance with, the document and all of the details and instructions set forth' ❹❺.[13]

[12] With his work *Factum I and I* from 1957, Robert Rauschenberg, an American pop art artist, challenged the principle of a non-copiable characteristic style, the individual signature of the artist. He accomplished this by producing an almost exact twin of a screen printing painted with gesticulatory brush strokes (Römer 2001, p. 72).

[13] Excerpt from the certificate of the artwork *Untitled* (1970) by Donald Judd, owned by G. Panza, displayed in the Guggenheim Museum (Scheidemann 1999, p. 144).

Requirements for remaking

The remaking of a concept-based artwork requires the availability of the corresponding techniques and materials and knowledge of the necessary details of the concept.

(1) AVAILABLE TECHNIQUES

As a rule, repeated realization of a concept requires the same techniques as used for previous materializations because these (special) techniques are either specified by the artist's intention or they have a decisive influence on the artwork's appearance. However, if the technique has not been explicitly specified by the artist and only the final appearance is important, then the traces left by fabrication can be imitated by other procedures. If a technique specified by the artist is no longer available and if the artwork's appearance can only be reproduced by this particular lost technique, a remake is no longer possible.

(2) AVAILABLE MATERIAL

Remaking requires the availability of suitable materials, although in most cases, the artwork is characterized by properties such as appearance, handling or workability rather than a particular material. However, a remake is usually impossible if a material has been used that has a special meaning or characteristics and an equivalent material is unobtainable.

(3) SUFFICIENT KNOWLEDGE OF THE CONCEPT

In order for a concept to be executed authentically, the remake must fulfil the essential specifications of the concept. The basis of every remake is thus knowledge of the concept itself. Insufficient information or irresolvable inconsistencies cropping up during data research exclude the possibility of a remake. Realization of an artwork on a hypothetical basis is no longer a remake but reconstruction.

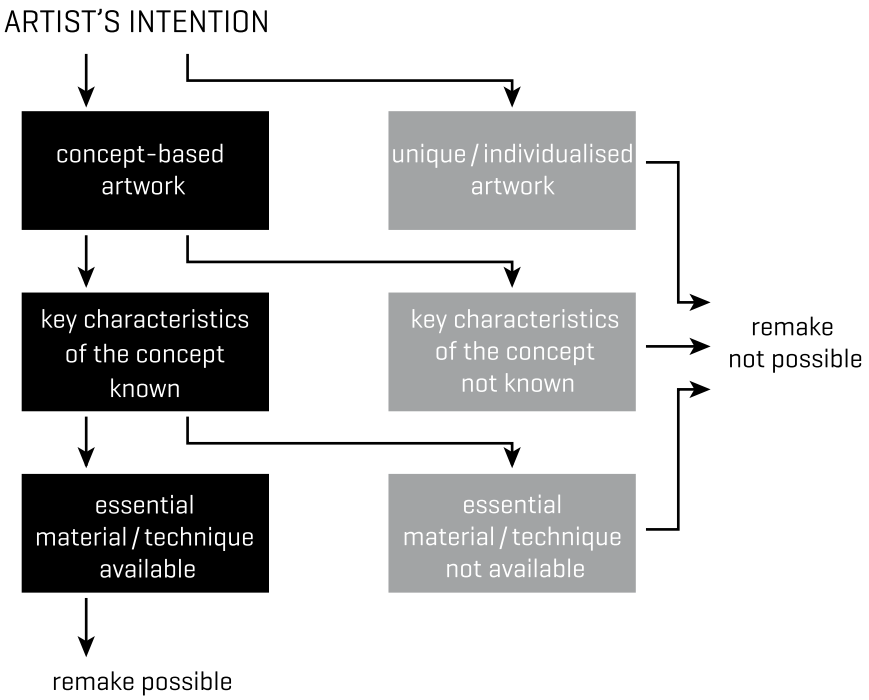
The challenge in preserving concept-based artworks by remaking is thus to determine the concept both clearly and unambiguously: 'A chair in day-to-day living has a totally different function and meaning than a chair in Bruce Nauman's work and still another meaning in an installation by Ilya Kabakov'. (Hummelen 1999).

However, only very rarely is there an unambiguous, written or otherwise fixed concept; 'only' material embodiments of the concept are available in most cases. In the opinion of many artists that work with concepts, 'the realised work is regarded as information that illustrates the underlying idea' (Marzona 2004). With such artworks, the essential criteria of the work have to be derived from examinations of the material and fabrication techniques as well as from information on the artist and his/her work so that the concept can be determined. Or in other words, the message of the concept has to be deciphered.

Additionally just like other artworks, embodiments of concepts are also affected by ageing, accidents and degradation that alter not only the appearance but also the artwork's statement. This makes it much more difficult to draw conclusions on the concept.

Only comprehensive research can thus elucidate which of the numerous characteristics of an artwork are essential and thus express the concept. The decisive factor is knowledge of the artistic intention at the time the artwork was created because it often allows conclusions to be drawn regarding the work's statement, essential features and the importance of particular materials. Statements made by the artist are vital in this respect, even if there is also a risk that statements made a long time after the original concept was created may be (unintentionally) falsified, for example, because the artwork's significance has changed for the artist. If the living artist cannot or will not help to determine the concept, it must be determined from other sources. It is also possible that artists cannot be contacted even while still alive or their opinion of their artworks may have fundamentally changed so that the often alleged impossibility of a remake after the artist's death is inconsequential. This alone does not exclude a remake, whereas missing information of the concept, lack of a key material or lack of necessary techniques makes a remake impossible ❻.

[14] For more information on term definition and delimitation of systematic terminology, see the diploma thesis on which this contribution is based: *Die Neuanfertigung von Originalen in der modernen und zeitgenössischen Kunst – Am Beispiel eines Werkes von Reiner Ruthenbeck*, Budde 2007, Stuttgart State Academy of Art and Design.



❻ Flow chart tracing the research process in deciding whether a remake is justified. COPYRIGHT Kerstin Luber.

Definition of a remake

A remake as a conservation measure aims to preserve the artist's concept and

1 an object is remade to replace an existing artwork that no longer fulfils the artist's concept (replacement function),
2 which fulfils all essential criteria of the artist's concept on which the artwork is based (concept fulfilment) and
3 the remake acquires the status of the previous original artwork (original status).

All well-known terms such as copy, replica, reproduction, reduplication, edition, version, variant, reconstruction or replicate lack at least one of these three mandatory criteria of a remake and thus cannot be used to define the term.[14]

Does a remake contravene the basic principles of conservation?

The job of a conservator is to preserve objects of cultural heritage. The basic premise of a conservator's professional ethics is to preserve the original work of art. At first sight, the replacement of materials in a remake contradicts the basic principles of conservation work. However, the consequence of extending the term 'originality' in contemporary art means that the original may not be the object and its materials but rather the concept behind the object. Thus, in contrast to conventional artworks, the concept is regarded as the original and the art object is used to communicate the concept. If this is no longer the case, the materials can be replaced because this would not be an intervention in the original work of art, but only in the materialization of the concept. The actual work of art – the concept – remains intact.

One of the conservator's general tasks requires preservation of cultural assets 'in the full richness of their authenticity' (Venice Charter 1964). The authenticity of an artwork is based on its context, as defined in the Nara Document on Authenticity: 'that heritage properties must considered and judged within the cultural contexts to which they belong' (UNESCO/ICCROM/ ICOMOS (Lemaire/ Stovel (eds.) 1995). Correspondingly, preserving the authenticity in such cases applies exclusively to the artistic intention – the concept – and not to the materials or materialization. The conservator, working with other specialists, must decide on a case-by-case basis where the actual authenticity of a particular artwork lies and then implement the necessary steps for its preservation. 'Conservators…must enter into the critical spirit of the works themselves if they are to save and transmit not merely decontextualized fragments but their essence to the future' (Reese 1999).

If an art object is irreparably damaged, but the actual work of art is the artistic concept and not the object's materials, replacement of these materials is the correct way of preserving both the authenticity of the work of art and the object itself.

Outlook

Deciding to undertake a remake is a huge challenge for the conservator owing to the scope and significance of such an intervention. The problems associated with determining the concept lead to a further task if an artwork is to be remade, particularly for the conservator supervising the collection: the necessary information about the concept should be determined and documented as early as possible so that a future remake does not become impossible due to a lack of information. Ideally, this research and documentation should be carried out directly after the artwork is created so that information is gathered while the original inspiration is still fresh in the artist's mind. When an artwork enters a collection, at the latest, it should be subjected to a comprehensive examination and the artist should be interviewed regarding his/her intention

and the specifications of the concept. Even without a particular conservation motive, the conservator should determine the concept at an early stage as a foresighted and preventive treatment.

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Acknowledging Differences: a Manifold of Museum Practices

Vivian van Saaze

Introduction

Over the last few years I have been fortunate to act as a participant observant during the European research project *Inside Installations: Preservation and Presentation of Installation Art* (2000-2007), coordinated by the Netherlands Institute for Cultural Heritage / ICN [1] and supported by the Culture 2000 programme of the European Union.[2] My aim as a PhD researcher back then was to study the conservation practices in several of the participating museum institutions. There are actually two questions here: how do museums approach these challenges and how to understand the role of conservation theory and ethics in these practices? Drawing on fieldwork conducted at museums and during the meetings of the *Inside Installations* partners, my thesis explored how key concepts such as 'authenticity' and 'artist's intention' figure in day-to-day museum work. Moreover, my study explored how conservation practices play an important role behind the scenes in the perpetuation of installation artworks. Rather than focusing on fixed and finished artworks, I was concerned with what shapes the artwork's continued existence in museum contexts. By reconstructing the trajectories of these artworks as part of museum practices, I tried to make these practices more transparent.[3] The cases that I studied during my research period, as well as those collated in this publication, show that the continued existence of installation artworks is the result of a lot of work and effort. This process starts as soon as an installation enters the museum or when acquisition negotiations begin. As a result of re-installation, replacement of obsolete equipment, reconstruction, or other interventions, such artworks may change in appearance even after they have entered a collection. Thus, although installation artworks in a museum are commonly presented as autonomous, fixed and finished artworks, the various examples addressed in this book demonstrate that installation artworks often require a more active and hands-on engagement from museum professionals to enable their continued display. Because of their variable and indeterminate character, installations cannot be understood separately from the actors and museum practices in which they circulate. The existing division between museum practices behind the scenes and the artwork in the public space of the gallery appears to become blurry. This awareness became the backbone of my research.

Looking back, I think what struck me most during my research was the diversity of museum practices and the insight that these practices – the conscious and unconscious repertoires – are intertwined with the organization structures of museums.[4] Seemingly extraneous factors such as differences in scale, financial constraints, communication flows, work dividing arrangements, architecture and other organization structures in museums affect the identity of a work. Although these issues are normally considered

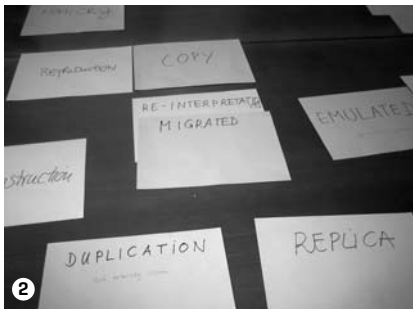
1 On 1 January 2011, the Netherlands Institute for Cultural Heritage / ICN became part of the Cultural Heritage Agency / RCE.

2 *Inside Installations* was coordinated by the Netherlands Institute for Cultural Heritage (ICN, Amsterdam), and co-organized by Tate Modern, London (UK); Restaurierungszentrum der Landeshauptstadt Düsseldorf (Germany); Stedelijk Museum voor Actuele Kunst (S.M.A.K.), Ghent (Belgium); Foundation for the Conservation of Contemporary Art (SBMK) (the Netherlands); Museo Nacional Centro de Arte Reina Sofia, Madrid (Spain). Project website: www.inside-installations.org (accessed July 2010). See also the introduction by Tatja Scholte in this book.

3 Van Saaze 2009. Selected cases are: *One Candle* (1988) by the artist Nam June Paik (1932-2006) in the collection of the Museum für Moderne Kunst, Frankfurt; two works by Joëlle Tuerlinckx (1958): *ensemble autour de MUR* (1998) in the collection of S.M.A.K., Ghent, and *A Stretch Museum Scale 1:1, een voorstel voor het Bonnefantenmuseum* at the Bonnefantenmuseum, Maastricht; *No Ghost Just a Shell* (1999-2002) in the collection of the Van Abbemuseum, Eindhoven, a project initiated by French-based artists Pierre Huyghe (1962) and Philippe Parreno (1964).

4 see page 250

outside the artwork itself, in the case of installation artworks they have an effect on how they are presented and preserved.
On the basis of my experiences as a relative outsider looking into the conservation world, I have been asked to reflect on some of my fieldwork observations in relation to the changes contemporary art museums are facing today. Before going into this, I will first elaborate a bit more on my research approach and related issues that I encountered during my three years with *Inside Installations* ❶❷.



Doing field research at *Inside Installations*

Studying conservation as a practice asked for a different approach than commonly found in art history and museum studies. My choice for an empirical approach that used ethnographic research methods was indicated by its strong rooting in practices and by the possibility for studying art processes that are not open to other methodologies. Although the term 'ethnography' is far from unambiguous, it is generally understood to be a methodological variation within qualitative research encompassing observation in a social setting. Usually, the position of the researcher is described as a 'stranger': an outsider as opposed to the insider belonging to a certain group. Methodologies of ethnographic research, such as conducting interviews and observation during fieldwork, are primarily developed in anthropological research. Traditionally these methods were developed to explore 'the far and the foreign'; studying societies and customs of indigenous cultures found in Papua New Guinea or New Mexico. Today, although scholars are well aware of its highly debated colonialist past, ethnographic research is also conducted in Western society and performed in a diverse range of settings such as medical practices, science and technology studies, as well as museum ethnography.[5]
As a participant observer studying museum practices of conservation, my role during *Inside Installations* was somewhat unusual. Unlike the other participants, I, for example, did not carry the responsibility for a collection, nor was I in the position to perform research on a particular installation for the purpose of conservation. My presence at museums and meetings was generally met with acceptance and sometimes with curiosity. During such research meetings I made notes, took pictures, and if it felt appropriate, I asked questions for clarification. At times, I thought that my presence as a mainly silent observer was overlooked but there were also moments that the museum professionals suddenly became aware of my presence again and directed a question to me or asked me to comment on a conservation issue or decision that was about to be taken. I remember that during one of those meetings a conservator remarked, rather agitatedly: 'You always hear our thoughts but we never get yours'.
Indeed, my task as an observer was not to judge or evaluate the working practices of museums as I lack the skills and experience of conservation specialist; rather, my goal was to explore their practices, to make visible existing patterns and unravel long-established presuppositions. Needless to say, my presence of course transformed the practices I studied and over time I deliberately adopted more of an interventionist's approach by asking probing questions during research meetings, sharing literature references and pre-

[4] The term 'repertoire' here is used in the same way as social scientist Jessica Mesman describes it: 'A repertoire involves a particular style of reasoning; as such it functions as a guiding principle that orders our ideas about what the world is and how it works. This guiding aspect should not be viewed too strictly, though. Rather than exactly fixing what will be said or done, a repertoire determines what those involved view as relevant, which arguments or strategies, they feel, matter. It outlines what is central or peripheral in a particular situation or condition. It provides a frame for legitimizing decisions' (Mesman 2008, p. 36).

[5] For an ethnographic account of the science museum, see for example: Macdonald (2002).

❶ Project partners discuss terms in a concepts workshop during an *Inside Installations* meeting on theory and semantics, 12 May 2006, Bonnefanten Museum, Maastricht. ❷ Examples of terms being discussed during concepts workshop.

senting preliminary research findings at conservation conferences.
One of the problems I did encounter during my fieldwork was the issue of confidentiality related to delicate, sometimes politically loaded research materials. Drawing on the interviews and conversations conducted with museum staff, I realized that historically, preservation issues are concealed and confidentiality agreements are quite common to conservation practice. In this sense the *Inside Installations* project also provided me with access to museum practices and deliberation processes that would have otherwise most likely been closed to outsiders.
During my fieldwork I encountered tremendous dedication and inquisitiveness among the project participants. I have fond memories of the many meetings and discussions facilitated by the *Inside Installations* project members. Arguably, in those three years the project led to the formation of a community, employing common concerns, values, and a more or less shared vocabulary. Yet despite these similarities, there are also numerous differences, some of which will be explored in the following sections.

Inside Installations: a *European* research project

It is important to note that like any setting, *Inside Installations* is a particular setting and does not necessarily reflect 'regular' museum practices. During my research I was well aware that the set-up of the project as well as its European Union (EU) funding may to some extent have influenced the practices that I was studying. Indeed, without the EU funding, some of the research conducted by the participating museums would probably not have been possible at all.
Although this was not the focus of my research, it would be interesting to investigate what kind of impact European funding and network formations such as these have on the conservation of contemporary art. National and international collaborations and overarching resources seem increasingly important for bringing the conservation field forward but what are its unintended effects? Despite the larger dissemination of the *Inside Installations* project's research results and the proliferation of the International Network for the Conservation of Contemporary Art (INCCA) as a world-wide conservation community, it seems a legitimate question to ask to what extent such funding structures nourish particular 'European' conservation customs – or even a gap between European and non-European museums and research institutes. Is it possible to discern a typical European approach as opposed to, for example, a US or Canadian approach in terms of decision-making related to the conservation and perpetuation of installation artworks? Although national and cultural differences are quite common to the conservation field, these differences are not often addressed in conservation literature concerning the conservation of contemporary art. Will the German approach towards the conservation of, let's say, a Bill Viola piece be the same as an English or Spanish approach, or are geographical boarders of lesser importance than other circumstantial differences?

Inside Installations: a manifold of practices

One of the many things that I learned to appreciate from the case studies conducted during *Inside Installations* was the sheer diversity of participating museums and related conservation practices. While my own research focused on case studies at middle-sized continental, public museums, even within this category there were still many variables in terms of institutional culture, style and scale, organizational structure, politics, documentation procedures, architectural constraints and funding resources. These seemingly extraneous factors often determine the identity of an installation artwork and play a role in its perpetuation; installation art and the practices in which they *become* are so much intertwined that they can hardly be separated from each other. Elsewhere I have argued that, as a consequence, studying these practices is a prerequisite for understanding installation artworks.[6]

A much-discussed topic during the *Inside Installations* project related to the institutional structure and museum hierarchy was the changing role of the conservator.[7] In today's conservation theory and practice it is well recognized that the role of the conservator of contemporary art is undergoing some major transformations.[8] Rather than a passive custodian, the conservator is acknowledged to be an interpreter or even a co-producer and conservation is increasingly recognized as a productive activity. As a consequence of these changing artistic practices, the conservation field is challenged to rethink its professional standards and become increasingly reflexive of its own doings. Interestingly, most participants of the *Inside Installations* project were indeed trained as conservators. Despite increasing collaboration models and cross-disciplinary approaches in museums, only a few curators were actively involved in the project. Drawing on the articles in this volume, it seems that – at least in many of the European museums – the conservator plays a significant, if not the most important, role in decision-making processes. Of course in many cases curators (and artists) are consulted in cases of decision-making, but the conservator seems to have the final say. The complexity of decision-making processes related to the conservation of contemporary art requires more research. Who is involved in decision-making and who is in the end authorized to take certain decisions? Is it possible to discern particular patterns in decision-making processes, and which circumstances influence decision-making and negotiating processes?

Questions related to the apparent diversity among conservation practices are, for example: will the increase of network activities and knowledge exchange ultimately lead to uniformity and consensus in approach; applying general methodologies and common guidelines resulting in mainstream conservation strategies but implying a loss of diversity? Or is it possible to embrace the diversity of conservation practices and acknowledge other, perhaps equally valid, strategies?

Conclusion: conservation practices and contemporary art museums

The awareness that the museum is not a neutral place is certainly not new, yet its conservation practices are generally neglected in art historical and aesthetic readings. The compilation of case studies in this book shows that the criticism of museums as a last repository or mausoleum of 'dead' objects

6 Van Saaze 2009.

7 In line with the vocabulary used in the *Inside Installations* project, I adopt the term 'conservator' instead of 'restorer' or 'conservator-restorer'. For further reading on the terms 'curator', 'conservator', 'restorer', and 'conservator-restorer', see for example Ex 1993, p. 17 and pp. 134-141; Clavir 2002; Muñoz Viñas 2005, pp. 7-25.

8 On the changing practice of the conservator and the need for more reflexivity in conservation practice, see also: Hummelen and Scholte 2004; Hill Stoner 2005; Macedo 2006; Laurenson 2006; Wharton and Molotch 2009.

is challenged by contemporary artworks. Slowly but surely, the contemporary art museum is responding to the changes in production and distribution systems of contemporary art, exploring new concepts of ownership, investing in new and divers audiences, and suffering from severe cutbacks in financial resources. In the words of Tim Griffin, editor-in-chief of *Artforum*: 'The terms for art are changing quickly, or, perhaps, more accurately, these shifts have already taken place and are only now becoming discernible in the structuring of art's institutions' (Griffin 2010, p. 47). In light of the profound transformations museums are facing today, the conservation of contemporary art works is just one of its many challenges.

The chapters in this book demonstrate, however, that these issues are not only of interest to conservators. Indeed, contemporary art conservation is in an exciting stage of development in which long-held assumptions are no longer taken for granted. As a result, the complexity and scope of conservation practices increasingly attract the interest of art historians, philosophers, social scientists and scholars in museum studies.[9]

By investigating the causes of the changes and stages in an artwork's trajectory, opening 'black boxes' reminds us that things could have been different. Moreover, it shows that attending to certain strategies and rejecting others is largely a matter of choice. Rather than following a well-established theory and operating within a more or less clear-cut framework such as the 'scientific freeze' paradigm (focusing on the physical properties of the work), conservators of contemporary art are constantly making decisions (sometimes deliberate, sometimes not) such as those involved with the level and the kind of intervention.[10] How then to evaluate conservation practices? When is a conservation strategy considered to be successful? What are the conditions for a discussion of criteria?

Of course, more (comparative) research would be a prerequisite to draw real conclusions about diverse conservation practices. Future research may also address cultural differences in conservation attitudes and approaches, as well as extend its focus towards art in public space and private collections. More open discussion and recognition of multiple practices would take conservation out of the realm of controversies, closed doors and confidentiality. This would however first and foremost imply that, like the contributing authors of this publication, those doing the work are prepared to speak about their practices, to own up to conservation dilemmas and decisions, to allow for doubt and to be evaluated.

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9 Also worth mentioning in this context is the scholarly work of art historian Martha Buskirk, philosopher Sherri Irvin and sociologist Albena Yaneva. Based on empirical research but departing for different angles, these authors arrive at insightful perspectives on conservation deliberations and the shaping of installations within a museum setting.

10 See also: Van de Vall, R. (et al.) 2009.

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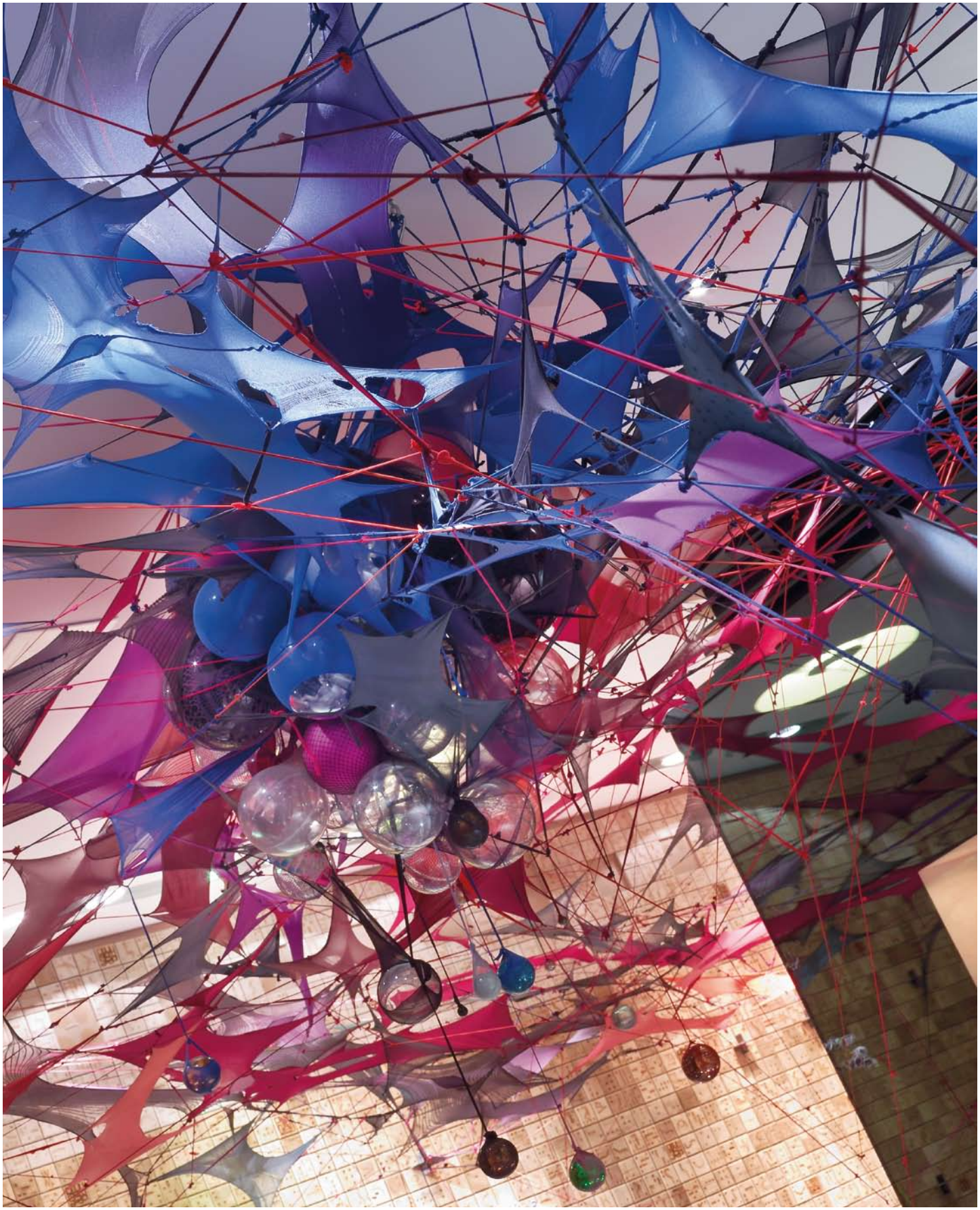

Madeleine Berkhemer, *Milly's Chandelier*, 2009. pantyhose, glass and Plexiglas. Installed at Christian Louboutin store Miami, USA. PHOTO Madeleine Berkhemer

Thea van Oosten

In the past, when confronted with a complex installation my first thought was often 'Oh my, what a lot of work conserving all of those unstable materials'. After years of working together with conservators of contemporary art, I have however come to understand that the 'traditional' approach to conservation in which museum professionals do their utmost to preserve the original materials is no longer always the best solution. Being a scientist this new approach to conservation has sometimes been a challenge to accept.

Another aspect of conservation that I have seen change over the years is the level of knowledge that is expected of the conservator. With modern plastics for example, it may be a simple task to discover the material used, but finding out how it was produced; the way it was mixed, heated and poured for example influences the way the material ages. Working in collaboration with a conservator is essential in order to gain a full picture of the artwork. Indeed I have for many years worked together with conservators during a restoration process, researching and testing materials along the way. In addition, the diversity in modern materials is so great, that more and more specialist knowledge is needed.

Something that I have missed over the years but what has only recently started to occur is direct contact with the artist. Normally I would work with conservators, who would in turn share the results of testing and offer my advice to the artist. In the past year or so however, artists have been contacting me directly with problems they are facing with modern materials. The interesting thing is that they are contacting me at an early stage in the 'life' of an artwork. I have for example been working for some months with Rotterdam based artist Madeleine Berkhemer who, amongst other things, creates impressive installations made from pantyhose, glass and Plexiglas. Madeleine approached me as she already has to deal with durability problem with the materials used in the pantyhose she uses. Together we are going to find a way to interest industry and manufacturers in helping us find a solution.

It is great that artists find their way to me and I enjoy working with them. However, solving conservation problems and coming up with a sound presentation strategy is something that a scientist cannot do in isolation. Ideally, all voices would be at the table: the conservator, the curator, the conservation scientist and last but not in any way least, the artist.

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Organizations

- American Institute for Conservation of Historic and Artistic Works (AIC)
  www.conservation-us.org/
- European Confederation of Conservator-Restorers' Organisations ECCO
  www.ecco-eu.org/
- International Council of Museums Committee for Conservation (ICOM-CC)
  http://icom-cc.org/
- International Network for the Conservation of Contemporary Art (INCCA)
  www.incca.org
- The Institute for Conservation (ICON)
  www.icon.org.uk/

Projects

- AktiveArchive
  www.aktivearchive.ch
- Inside Installations: Preservation and Presentation of Installation Art
  www.inside-installations.org
- GAMA. Gateway to Archives of Media Art.
  www.gama-gateway.eu/
- Forging the Future (Variable Media Network)
  http://forging-the-future.net/
- New Strategies in the Conservation of Contemporary Art (research programme)
  www.newstrategiesinconservation.org/index.php
- Matters in Media Art
  www.tate.org.uk/research/tateresearch/majorprojects/mediamatters/
- POPART, European project Preservation of Plastic Artefacts in Museum Collections.
  http://popart.mnhn.fr/
- The DOCAM Research Alliance
  www.docam.ca

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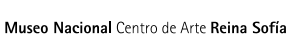

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Anything is possible in installation art. The typically short lifespan of the materials and techniques used and the intended experience can be endless, often to the despair of the custodian of the work. The processes involved in preserving this complex form of art, reinstalling it, finding ways to recreate the experience over and again, as well as the decisionmaking that underlies these processes, form the backbone of this book.
What did the artist originally intend and how has that concept been realised in the past? How can one preserve and document the installation? What relation exists between the components and the space, and what is the spectator's part in the work? Questions of this kind are examined in connection with a number of case studies. At the same time, it reports on the results of an extensive research project Inside Installations (2004-2007) carried out by an international group of custodians active in the conservation of contemporary art.

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Theory and Practice in the Care of Complex Artworks