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Rethinking authenticity in digital art preservation

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ABSTRACT

In this paper I am discussing the repositioning of traditional conservation concepts of historicity, authenticity and versioning in relation to born digital artworks, upon findings from my research on preservation of computer-based artifacts. Challenges for digital art preservation and previous work in this area are described, followed by an analysis of digital art as a process of components interaction, as performance and in terms of instantiations. The concept of dynamic authenticity is proposed, and it is argued that our approach to digital artworks preservation should be variable and digital object responsive, with a level of variability tolerance to match digital art intrinsic variability and dynamic authenticity.

Categories and Subject Descriptors

H.1.1 [**Systems and Information Theory**]: Value of information.
J.5 [**Arts and Humanities**]: Arts, fine and performing

General Terms

Documentation, Theory, Verification.

Keywords

Digital preservation. Digital art. Authenticity. Instantions. Perfomances. Music notation.

1. DIGITAL CASUALTIES: CHALLENGES FOR DIGITAL ART PRESERVATION

Born digital art is fundamentally art produced and mediated by a computer. It is an art form within the more general "media art" category [1] and includes software art, computer-mediated installations, Internet art and other heterogeneous art types.

The boundaries of digital art are particularly fluid, as it merges art, science and technology to a great extent. The technological landscape in which digital art is created and used challenges its long term accessibility, the potentiality of its integrity, and the likelihood that it will retain authenticity over time. Digital objects – including digital artworks – are fragile and susceptible to technological change. We must act to keep digital art alive, but there are practical problems associated with its preservation, documentation, access, function, context and meaning. Preservation risks for digital art are real: they are technological but also social, organisational and cultural [2].

Digital and media artworks have challenged "traditional museological approaches to documentation and preservation because of their ephemeral, documentary, technical, and multi-part nature" [3]. The technological environment in which digital art lives is constantly changing, and this fast change makes it very difficult to preserve this kind of artwork. All art changes. And these changes can occur at art object level and at context level. In most circumstances this change is very slow, but in digital art this isn't the case anymore because it is happening so quickly, due to the pace of technological development.

Surely the increased pace of technological development has more implications than just things happening faster. Digital art, in particular, questions many of the most fundamental assumptions of the art world: What is it a work of art in the digital age? What should be retained for the future? Which aspects of a given work can be changed and which must remain fixed for the work to retain the artist's intent? How do museums collect and preserve? Is a digital work as fragile as its weakest components? What is ownership? What is the context of digital art? What is a viewer? It is not feasible for the arts community to preserve over the centuries working original equipment and software. And industry has no incentive to reproduce old parts or to make current parts backwards compatible. Furthermore, as Richard Rinehart noted, due to lack of formal documentation methods and the goal to bypass traditional art world's values and practices, media art works are "becoming victims to their own volatile intent" [4]. Museums have long played a critical role in the creation and transmission of knowledge, culture and identity [5]. As they undergo a metamorphosis from the physical to the virtual, museums continue to serve this custodial role, although their nature and reach might be very different in the future. In particular, as museums invest in collecting digital works, they come to recognize that these works are fragile and may require substantial continued investment in finance and effort to keep them accessible over time.

2. LONG-TERM ACCESSIBILITY OF DIGITAL ART: PREVIOUS WORK

Digital art may seem less physical than traditional art. But as novelist Bruce Sterling noted, "very little materiality, is very, very far from no materiality at all" [6]. The bitstream might be composed by numbers, but the device – the computer – has similar conservation problems as a painting (e.g. humidity, heat, physical damage), plus a whole set of new ones.

Digital preservation is not only about keeping the bits that we use to represent information, but to keep these bits *alive*, as an ongoing activity to ensure recurring value and performance of digital objects, including digital artworks. As Seamus Ross clarified, digital preservation is about "maintaining the semantic meaning of the digital object and its content, about maintaining its provenance and authenticity, about retaining its interrelatedness, and about securing information about the context of its creation and use" [7]. Conservation and restoration are relevant, however they are part of a larger group of activities to ensure longevity for digital objects: collection and repository management, selection and appraisal, destruction, risk management, preserving the context, interpretation and functionality of objects, ensuring a collection's cohesion and interoperability, enhancement, updating

and annotating, scalability and automation; storage technologies and methods.

In the last decades, much work has been done towards establishing the long-term accessibility of electronic, media and digital art, as well as documenting media and digital art in order to keep it accessible in the future. Some of the key projects and initiatives in this area were started already in the 1970s (for example, the Electronic Art Intermix [EAI] and the Netherlands Media Art Institute [NIMk], Montevideo/Time Based Arts) and further initiatives developed through the following decades, including V2, Matters in Media Art, Forging the Future and DOCAM [8].

These projects and initiatives have contributed to raising awareness on some of the challenges of digital art preservation, examine media and digital art works, explore some specific documentation aspects, and initiate collaborations with other institutions. Nevertheless, much of this work has been survey-like and not particularly well-founded from either a theoretical or methodological perspective. So far, the theoretical aspects of the problem of digital art preservation and curation have been examined without much grounding particularly in experimentation, and not responding to the theoretical and methodological dilemmas posed by digital art (e.g. transience, emergence, and lack of fixity). Also the long term preservation of documentation for digital art has not yet been systematically addressed. Documentation for digital art is at risk as much as digital artworks themselves, and needs sustainable business and organisational models to be preserved in the long term.

It is evident that digital art is a new phenomenon that requires a new suite of methodologies.

3. MY INVESTIGATION

The goal of the research project *Preserving Computer-Generated Imagery: Art Theory, Methods and Experimental Applications* [9] that I am conducting at the University of Glasgow is to contribute to laying the foundations for a preservation framework of digital art and identifying interdisciplinary synergies with areas such as digital preservation, philosophy of art, archival science and information management. Digital art is after all data designed to be constructed (represented, viewed, experienced) in particular ways, whose theoretical implications need consideration. The methodology that I have chosen to take is bottom up, to try to understand how digital art works. That is: I am starting with the works, the conservators and the creators, using a mixed method of humanistic, social science [10] and engineering approaches. So I have decided to adopt a two-step method: onsite visits to major international collectors of digital art and in-depth interviews with their staff; and experimentation with testbeds to assess preservation methods and processes. I am using a mixed method of humanistic, social science and engineering approaches.

The humanistic element of it is the art history aspect, and the reflection on what is a work of art in the digital age and what is the context of digital art. I am presenting some reflections on authenticity and longevity for digital art in section 4, ideas which have been further shaped by my social science approach. From a social science perspective I have visited and talked with some of the most important collectors of digital art conducting a whole series of interviews, which have provided me a window on the practices of different organisations working with digital art. I have borrowed methods from anthropology and grounded theory.

In my first phase of ethnographic process of observation of digital media art, I looked at key digital art organizations and how they are collecting, curating, preserving, displaying, and financing digital art. I conducted onsite in-depth interviews, visits and observations because what I am told is sometimes at variance with what is being done. The organizations that I targeted and selecting for my case studies are major international collectors of digital artworks and digital art documentation. I visited ZKM | Media Museum at the ZKM | Centre for Art and Media (Germany), Ars Electronica Centre – AEC (Austria), The Hirshhorn Museum and Sculpture Garden, (USA), Smithsonian American Art Museum and Lunder Conservation Center (USA), Museum of Modern Art in San Francisco – SFMOMA (USA), Berkeley Art Museum – BAM (USA), Museum of Modern Art – MOMA (USA), Whitney Museum (USA), and NIMk (The Netherlands). The complexity of maintaining the object longevity and the myriad of change that can occur over time means that we need to talk with organizations that have decades of experiences to understand what needs to be done in this area. Interviews with stakeholders of digital art preservation (museum directors, conservators, curators, registrars, technicians) are a new approach in this area. I also conducted interviews and observations with selected digital artists (John Gerrard, Studio Azzurro, Maurice Benayoun) for an additional analysis of relevant aspects of preservation for digital artworks.

4. REFLECTIONS ON AUTHENTICITY FOR DIGITAL ART

Two aspects emerged from the first phase of my investigation strike me as key for digital art preservation: the intrinsic performing nature of digital art, and the dynamic nature of digital art authenticity.

4.1 Digital art as a process of components interaction

The ability to establish authenticity in a digital object is crucial for its preservation [11]. Even if the concept of authenticity is highly nuanced in the digital age, it is still a starting point for discussion about digital art. But to talk about authenticity we need to look at how digital art is created and rendered. For example, the image of the work *Bubbles* (2001) by Muench and Furukawa in the ZKM | Media Museum, is a process of interaction of many components: for this example particularly, the file in which the data matrix representing the image is stored, and the software capable of interpreting and rendering this data form. If we were to explore this example in full, we would also need to discuss the hardware, the data projector, the screen, and the relationships (including intended effects) that all this has with the viewer.

4.2 Digital art as performance

This interaction of components leads me to think that all digital art is a performance, and more than a performance between the viewer and the object. In this particular instance, the performance that I am actually talking about is the *performance of* the work. Because a digital artwork consists of a set of code, and for the artwork *to become*, it must be performed. Before the viewer interacts with the digital artwork, this process of becoming has to occur. For example in the case of John Gerrard's 3D real time work *Grow Finish Unit (near Elkhart, Kansas)* (2008) at the Hirshhorn Museum, the algorithm developed by Gerrard needs to be performed in order for the work itself – the real time 3D – to come to life.

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This problem isn't actually unique to digital art. For example, within the AktiveArchive project, Johanna Phillips and Johannes Gfeller wrote interesting reflections about reconstruction and well-informed re-performances of video art [12]. But in the field of digital art, it is nearly another construct. Some very groundbreaking work in the documentation of performances has been done by Richard Rinehart, former digital media artist and director of the UC Berkeley Art Museum/Pacific Film Archive. Rinehart produced a promising theoretical approach based on a formal notation system for digital and media art creation, documentation and preservation: the Media Art Notation System (MANS) [13]. He compared media art to the performative arts, because media art works do not exist in a stable medium, and are inherently variable and computational. Their preservation is thus an interpretive act. Given the similar variability of music and media arts, Rinehart considers as appropriate a mechanism like a musical score for binding the integrity of media art works apart from specific instruments.

4.3 Instantiations, authenticities and documentation of digital art

Considering digital art as performance leads to some interesting reflections about its instantiations. As Seamus Ross observed, the "first renderings of digital objects might best be referred to as an initial 'representation or instantiation' (II). The problem is: how can we record the functionality and behaviour as well as the content of that initial instantiation (II) so that we can validate subsequent instantiations? Where subsequent instantiations (SI) share precision of resemblance in content, functionality, and behaviour with the initial instantiations, the 'SIs' can be said to have the same authenticity and integrity as the 'IIs'" [14]. This notion of precision of resemblance is intended to reflect the fact that initial instantiations of digital objects and subsequent ones will not be precisely the same, but will have a degree of sameness. This degree of sameness will vary overtime – in fact in the case of digital objects it is likely to decline as the distance between the initial instantiation and each subsequent one becomes greater, although this degree of variation may be mitigated by such circumstances as for example the frequency at which the digital object is instantiated. So each time a digital work of art is instantiated, it has a greater or lesser precision of resemblance to the initial instantiation, which the artist created. The subsequent instantiations represent with greater or lesser degrees of accuracy the intentionality of the artist. Whether they have greater or lesser degrees of authenticity is a separate but fundamentally important question and need to be considered in the context of, for example, the authenticity of performances. The UNESCO Guidelines for the Preservation of Digital Heritage mentions the question of assessing an acceptable level of variance of such instantiations [15]. This was also more recently highlighted by Richard Rinehart, in relation to the ecological balance of changes in the technological environment of digital art [16].

The intrinsic performing nature of digital artworks makes them allographic rather than autographic works, along the distinction described by Nelson Goodman [17]. So I would like to draw a parallel between the instantiation of the code in a digital work, and the instantiation of the notation in a music performance, as described by John Butt and Dennis Dutton.

We often assume that music notation is a rigid set of instructions. In reality, sometimes notation is the result of performance,

sometimes it is a reminder, and sometimes it is just an example. There is no single process from notation to performance. The notation is going in all directions, with a complex relationship between sender and receiver. In his seminal book *Playing with history: the historical approach to musical performance* [18], John Butt has questioned whether "authenticity" is still an appropriate term for music performance given that, in performance terms, it tends to condemn its negative to a sort of fake status. In music, partly through Butt's effort, we now tend to use the term "historically informed performance". In his reflection on nominal authenticity in the arts, Dutton writes, "the best attitude towards authenticity in music performance is that in which careful attention is paid to the historic conventions and limitations of a composer's age, but where one also tries to determine the artistic potential of a musical work, including implicit meanings that go beyond the understanding that the composer's age might have derived from it "[19].

The dynamic notion of authenticity of digital art might seem to be in contrast with the notion of material authenticity that has been constructed for historical artworks. If we look at authenticity in object conservation in museums, authenticity is a term associated with the original material components and process in an object, and its authorship or intention. For example, in his critique of traditional conservation ethics, Jonathan Kemp describes "authenticity in the sense of 'original material', traditionally one aspect of an object charged with the assignation of a 'truth value' that legitimizes some aesthetic experiences" [20]. However these conservation principles are socially constructed processes mediated by technology-based practices, whereas the object keeps changing: it deteriorates, its context might change, and the way that it is conserved and re-displayed will change. The role of conservators and of museums also changes over time. Therefore the conservators are caught between reconciling fidelity to the original artist intention, and fidelity to the passage of time. Joseph Grigely also argued that any work of art is subject to a "continuous and discontinuous transience" [21], that is integral to its authenticity. This means that any work of art – I shall add including digital art – is not fixed in a single point in time, but it is rather in a "continuous state of becoming", as Heather MacNeil and Bonnie Mak elegantly pointed out [22]. Like in Penelope's tale, conservators are actively constructing and reconstructing the authenticity of a work based on their understanding of its nature and the current conventions and assumptions for conserving it.

These reflections on instantiations and authenticity led my attention to the concept of authenticity in electronic records. As Jennifer Trant noted, "archives have been challenged to manage electronic records as evidence for several decades […]" [23]. Like art conservators, archivists and record keepers are concerned with issues of fidelity. The trustworthiness of a record rests primarily on its fidelity to the original event, from which the record arises. The concept of provenance – a well-documented chain of custody – is thus a fundamental archival principle, which helps establishing authenticity [24]. This has parallels with my reflections on instantiations of digital artworks. If we look at computer-based art from the point of view of performance and archival authenticity, what is then really important is a trustworthy chain of documentary evidence about the work genuine origins, custody, and ownership in the museum collection. Authenticity is not an original condition, but it is rather a dynamic process. Digital artworks are pushing the boundaries of traditional conservation practices and the notion of historicity. For

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example, let's look at the ongoing preservation strategy devised within the Digital Art Conservation project [25] for the interactive media art work *The Legible City*, 1989-1991 in the ZKM | Media Museum. This strategy could be seen as the equivalent of rewriting an older music score to adapt it to a modern or different instrument. On one hand, this iconic interactive installation is based on proprietary, work-specific software; on the other, it uses obsolete hardware and custom-made components. Such combination makes the preservation of *Legible City* a costly and risky business, both for the price of maintaining its Indigo 2 computer (no longer produced by Silicon Graphics) and because of the potential weak point represented by its specially-built analog-digital transformer. Conservators at ZKM examined, documented and created a fully-functional replica of this transformer (the interactivity intended as part of the installation was also recorded), and software porting to another operating system is currently being evaluated by the ZKM as a more sustainable long-term preservation solution for the Indigo 2 computer . Some conservators and curators might argue that the replacement of the historical software and transformer challenges the historicity and originality of the artwork. However, digital art collectors need to come to terms with the fact that it will not be possible to guarantee forever original working equipment: in order to be kept alive, digital artworks will need to be adapted to a new technology [26]. This artwork at ZKM is in the state of *becoming*. This idea of becoming is clearly referenced in the work of Heather McNeil Bonnie and Mak about constructions of authenticity, and this goes back to the notion that digital art becomes, which I mentioned earlier. Digital works are in a state of evolution.

5. CONCLUSIONS

With this paper, I hope to stimulate discussions about current and future approaches for digital art preservation, and contribute to the interdisciplinary foundations of a scientific framework for digital art preservation.

Authenticity – as MacNeil and Mak clearly pointed out – is a social construct, whose parameters and contents are always changing and under negotiation. Authenticity allows us to author stability in our disciplines. The current fast-paced digital environment defies the traditional structures of stability that have been authored for traditional art. Therefore our approach to digital artworks should be variable and digital object responsive, with a level of variability tolerance to match digital art intrinsic variability and dynamic authenticity, as outlined in this paper. The designated community for whom we are preserving should also be identified, together with the modality of restaging digital works and of preserving the related digital documentation. In conclusion, if conservation for digital art is a moving target, then our scientific methodology should be a moving gun.

6. ACKNOWLEDGMENTS

7. REFERENCES

[1] Christiane Paul, *Digital art*, 2. ed., Thames & Hudson, 2008; id. (ed.), *New Media in the White Cube and beyond. Curatorial Models for Digital Art*, C. University of California Press, Berkeley, 2008; Alain Depocas, Jon Ippolito, and Caitlin Jones (eds.), *Permanence Through Change: The Variable Media Approach*, Guggenheim Museum, New York and The Daniel Langlois Foundation for Art, Science & Technology, Montreal, 2003; Oliver Grau and Rudolf Arnheim (eds.), *MediaArtHistories*, MIT Press, Cambridge, 2007; Wolf Lieser, *Digital Art. Neue Wege in der Kunst*, h.f. ullmann, Berlin, 2010.

[2] Perla Innocenti, Andrew McHugh, and Seamus Ross, "Tackling the risk challenge: DRAMBORA Interactive", in: Paul Cunningham and Miriam Cunningham (eds.), *Collaboration and the Knowledge Economy: Issues, Applications, Case Studies*, IOS Press, Amsterdam, 2008.

[3] Richard Rinehart, "The Media Art Notation System: Documenting and Preserving Digital/Media Art", in: *Leonardo: Journal of the International Society for the Arts, Sciences and Technology*, vol. 40, no. 2, 2007, p. 181; available online at: http://www.coyoteyip.com/rinehart/papers.html.

[4] Rinehart 2007, p. 181.

[5] Bennett, T. The Birth of the Museum. History, Theory, Politics, Routledge, London, New York, 2009; Knell, J.K., MacLeod, S., Watson, S. (eds.), Museum Revolutions. How Museums Change and Are Changed, Routledge, London, New York, 2007; Graham, B. Cook, S. Rethinking Curating. Art after New Media. Leonardo, MIT Press, 2010 and Altshuler, B. Collecting the new: a historical introduction, in Collecting the New: Museums and Contemporary Art, Princeton University Press, 2007.

[6] Sterling, B. "Digital Decay", in: Alain Depocas, Jon Ippolito, and Caitlin Jones (eds.), Permanence Through Change: The Variable media Approach, Solomon R. Guggenheim Museum, New York, Daniel Langlois Foundation, Montreal, 2003, pp. 10–22, http://www.variablemedia.net/e/preserving/html/var_pub_index.html.

[7] Ross, S. Digital Preservation, Archival Science and Methodological Foundations for Digital Libraries, Keynote Speech at the European Conference on Research and Advanced Technology for Digital Libraries (ECDL) 2007, Budapest, Hungary, 17 September 2007, p. 2, www.ecdl2007.org/Keynote_ECDL2007_SROSS.pdf.

[8] Electronic Art Intermix (EAI), www.eai.org/index.htm; Netherlands Media Art Institute NIMk, Montevideo/Time Based Arts, www.nimk.nl/. Further projects and initiatives developed over the last decades are: Independent Media Arts Preservation (IMAP), since 1999, www.imappreserve.org/; International Network for Conservation of Contemporary Art (INCCA), since 1999, www.incca.org/; Variable Media Network, 2000-2004, www.variablemedia.net/; AktiveArchive Project, 2001-2009, www.aktivearchive.ch/content/projekte.php; Archiving the Avant-Garde: Documenting and Preserving Variable Media Art, 2002-2010,

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www.bampfa.berkeley.edu/about/avantgarde; 404 Object Not Found. What remains of Media Art?, 2003. Sadly this project is no longer available online. A project description is at http://nimk.nl/eng/404-object-not-found-what-remains-of-media-art; V2_ Capturing Unstable Media, 2003, http://capturing.projects.v2.nl/; Matters in Media Art: collaborating towards the care of time-based media, since 2003, www.tate.org.uk/about/projects/matters-media-art; packed.be, since 2003www.packed.be/; PANIC (Preservation webservices Architecture for New media and Interactive Collections), since 2003; this project website is being preserved by the National Library of Australia at http://pandora.nla.gov.au/tep/49720; Inside Installation Project, 2004-2007, www.inside-installations.org/home/index.php; 40yearsvideoart.de, 2004-2006, www.40jahrevideokunst.de/main.php?p=3; Ludwig Boltzmann Institut - Medien.Kunst.Forschung, 2005-2009, http://media.lbg.ac.at/de/index.php; Forging the Future: New Tools for Variable Media Preservation, 2007-2008, http://forging-the-future.net/; DOCAM - Documentation and Conservation of the Media Arts Heritage project, 2005-2009, http://www.docam.ca/.

[9] Some aspects of my research have been published in Perla Innocenti, "Theories, methods and testbeds for curation and preservation of digital art", in: IS&T Archiving 2010 Preservation Strategies and Imaging Technologies for Cultural Heritage Institutions and Memory Organisations Conference, 1-4 June 2010, The Hague, pp. 13-17.

[10] Woolgar, S.,'Technologies as cultural artefacts, in: Dutton, W. (Ed.), Information and Communication Technologies - Visions and Realities, Oxford University Press, 1996.

[11] Ross, S. "Position Paper on Integrity and Authenticity of Digital Cultural Heritage Objects," in: Digicult. Integrity and Authenticity of Digital Cultural Heritage Objects, Thematic Issue 1, August 2002, pp. 6–8, www.digicult.info/downloads/thematic_issue_1_final.pdf.

[12] Phillips, J. "The reconstruction of video art. A fine line between authorised re-performance and historically informed interpretation," in: Irene Schubinger (ed.), Reconstructing Swiss Video Art from the 1970s and 1980s, JRP Ringier, Zurich, 2009, pp. 158-165; and Johannes Gfeller, "The reference hardware pool of AktiveArchive at Bern University of Arts. A basis for a historically well-informed re-performance of media art," in: Schubinger 2009, pp. 166-174. Some useful reflections are also published in: Erma Hermens, and Tina Fiske, T. (eds.), Art Conservation and Authenticities. Material, Concept, Context, Proceedings of the international conference held at and in Howard Besser, "Longevity of Electronic Art," in: David Baerman, and Franca Garzotto (eds.), International Cultural Heritage Informatics Meeting: Cultural Heritage and Technologies in the Third Millennium, Proceedings from the ichim01 Meeting, Milan, Italy, September 3–7, 2001, vol. 1, Archives & Museum Informatics, Pittsburgh, 2001, pp. 263–275, www.archimuse.com/publishing/ichim_01_TOC1.html.

[13] Rinehart 2007.

[14] Ross, S. "Approaching Digital Preservation Holistically," in: Tough, A. and Moss, M. (eds.), Record keeping in a hybrid environment : managing the creation, use, preservation and disposal of unpublished information objects in context, Chandos Press, Oxford, 2006, pp. 115-153.

[15] UNESCO (National Library of Australia), Guidelines for the Preservation of Digital Heritage, Report, 2003, § 16.7, http://unesdoc.unesco.org/images/0013/001300/130071e.pdf.

[16] Innocenti, P. Interview on curation and digital preservation of time-based/media art of with Richard Rinehart, Berkeley Art Museum (BAM), 25 March 2010).

[17] Goodman, N. Languages of Art: an Approach to a Theory of Symbols, Oxford University Press, London, 1969 (in particular the chapter on Art and Authenticity and on The Unfakable).

[18] Butt, J. Playing with History: the Historical Approach to Musical Performance, Cambridge University Press, Cambridge, 2002.

[19] Dutton, D. "Authenticity in Art," in: Jerrold Levinson (ed.), The Oxford Handbook of Aesthetics, Oxford University Press, New York, 2003, www.denisdutton.com/authenticity.htm.

[20] Kemp, J. "Practical Ethics v2.0," in: Richmond, A. (ed.), Conservation. Principles, Dilemmas and Uncomfortable Truths, Butterworth-Heinemann, London, Amsterdam, Boston, Heidelberg et al., 2009, pp. 60–72.

[21] Grigely, J. Introduction, in Texualterity: Art, Theory and Textual Criticism, University of Michigan Press, Ann Arbor, 1995, p. 1.

[22] MacNeil, H. and Mak, B. "Constructions of Authenticity," in: Library Trends, vol. 56, no. 1: Preserving Cultural Heritage, Summer 2007, pp. 26–52.

[23] Trant, J. "Emerging Convergence? Thoughts on museums, archives, libraries and professional training," in: Museum Management and Curatorship, vol. 24, no. 4, Dec. 2009, pp. 369–387.

[24] In archives authenticity is "the quality of being genuine, not counterfeit, and free from tampering, and is typically inferred from internal and external evidence, including its physical characteristics, structure, content, and context." see: The Society of American Archivists (SAA), A Glossary of Archival and Records Teminology, available online at: www.archivists.org/glossary/term_details.asp?DefinitionKey=9. In terms of evidence, "provenance is a fundamental principle of archives", defined as "information regarding the origins, custody, and ownership of an item or collection." See: The Society of American Archivists (SAA), A Glossary of Archival and Records Terminology, available online at: www.archivists.org/glossary/term_details.asp?DefinitionKey=196.

[25] Digital Art Conservation, 2011, *ZKM | Center for Art and Media Case Study: Jeffrey Shaw, The Legible City*. http://www02.zkm.de/digitalartconservation/index.php/en/exhibitions/zkm-exhibition/nnnnnjeffrey-shaw.html.

[26] Innocenti, P. Interview on digital preservation on media art of with Dr. Bernhard Serexhe, ZKM | Media Museum, Karlsruhe, 12 August 2008.

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