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'Aura and Temporality:
The Insistence of the Archive'
Wolfgang Ernst

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The Insistence of the Archive'
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Contents

Key-note speech on occasion of the workshop **The Anarchival Impulse in the Uses of the Image in Contemporary Art, Museum of Contemporary Art, Barcelona**, 24 October 2012[1]

The notes in blue correspond to Enric Puig Punyet, lecturer in Philosophy and Cinema at the Universitat Autònoma de Barcelona, author of essays on video and of research texts on philosophy, contemporary art and cinema. The notes in black are the comments of the author.

Between passive container and active mediator: the archive

When I first communicated the title of my talk, a typing error of mine caused confusion with the subtitle: 'THE INSTANCE OF THE ARCHIVE'.[2] But errors in typing can be productive in the anarchival sense, since all three different readings are true. I intend to talk about 'The insistence of the archive' *in spite of* the anarchival impulse, 'The instance of the archive' as a regulating law in digital technologies, and finally 'The instant of the archive' as a temporal moment. And however ambiguous the title of my talk has been, there will only be one final version in which my talk will have been recorded as actually spoken. The media archive will define the memory version.

When being looked at in a media-archaeological way, that is: close to the technology itself, there is nothing 'anarchic' in the digital world; every action here is based on precise algorithms.[3] The archive must thus be redefined in techno-mathematical terms.

What in public discourse and especially in the artistic world is frequently called the 'archive' turns out to be, in most cases, a most imprecise metaphor for all sorts of collections and memory.[4] The very term 'anarchival impulse' is itself an indirect indication that archival rules still insist and archival power still fascinates;[5] let us thus recover the positive sense in the archival order. Media-archaeological analysis focuses on the message of the medium itself. Applied to memory agencies and especially to the 'digital archive', this method leads to a new

interpretation of the different epistemological and aesthetical dimensions of what is commonly called 'the archive'. So far, 'exclusively spatial terms, such as installation, storage and collection have dominated the art discourse on archival methods and practices, emphasising the stability of archival content and its narrativity';[6] as once expressed in the exhibition *Deep Storage* on artistic archive practices.[7] While the traditional archival format – spatial order and classification – will in many ways necessarily persist, the new archive is radically temporalised, ephemeral and multimodal, corresponding with a dynamic user culture that is less concerned with records for eternity than with order in fluctuation.

In socio-politically biased art practice and theory, the archival metaphor refers to the archival institution but turns it into a postmodern metaphor. As Hal Foster remarks, archival art 'often arranges these materials according to *quasi*-archival logic, a matrix of citation and juxtaposition'.[8]

The staging of an archival space in artistic 'archives' like Muntadas's *File Room* (1994)[9] has been 'one of the first net art works that refer to the archive itself as a site of power and control, thematising "that which is silenced or eliminated from every archive" [Kouros 2012: 50].

The archive is no longer about the past any more than it is familiar from historical memory. This different kind of archive is synchronous with the present itself, since in its essence it is identified as a generative power.

Subject of our workshop is 'the value of the archive as mediator between collective memory and individual development'[10]. The notion of 'mediator' already assigns an active role to what has so far been considered a rather passive storage space: the archive.

Panos Kouros defines 'performative archiving' as a dynamic process of archive-making that evolves in the present, open for permanent re-editing and adding of new terms – the logic of the Internet in fact, like the Wikipedia principle. No more 'topo-nomology' of the static archive (as expressed by Jacques Derrida), but a new 'chrono-topology'. Arjun Appudarai calls this 'the diasporic archive'.[11] But can such a migrant archive still appropriately be called *an archive*, or is it *anarchival* already?

1   The audio file of the speech has been published in the MACBA web site: http://www.macba.cat/en/lecture-wolfang-ernst

2   E-mail Yaiza Hernández, 27 July 2012: 'You give your title as "AURA AND TEMPORALITY: THE INSTANCE OF THE ARCHIVE". I assume that "instance" is a typo. Therefore, we need to know whether this should be corrected…'

3   The precision of the algorithmic procedures on the digital archive can be seen in George Legrady's work *Pockets Full of Memories. From Data to its Organizing Structure.* http://www.georgelegrady.com

4   See the journal *Springerin* 4/2012, thematic issue 'Leben im Archiv' (Living in the Archive), asking: How to live in an(-) archival world, in which everything appears to have been pre-empted?

5   Following this impulse, some artistic digital archives have been recollected alternatively by self denominating "anarchive". http://www.anarchive.net is editing them on DVD, as can be seen in *Anarchive #2. Digital Snow* by Michael Snow (on-line version at http://www.fondation-langlois.org/digital-snow/) or *Anarchive #1. Media Architecture Installations* Muntadas, both edited by Centre Pompidou.

6   Panos Kouros, The Public Art of Performative Archiving, in: same author Elpida Karaba (eds), *Archive Public. Performing Archives in Public Art. Topical Interpositions.* Patras: University of Patras / Cube Art Editions, 2012, pp. 41–53 (42ff)

7   See the exhibition catalogue Ingrid Schaffner and Matthias Winzen (eds.), *Deep Storage.* Munich: Prestel, 1998.

8   Hal Foster, 'An Archival Impulse', in *October* 110 (2004), pp. 1–11 (5).

9   http://www.thefileroom.org. Further links at http://www.medienkunstnetz.de/works/the-file-room/

10 The archive as a mediator between subject and memory has been widely explored by Chris Marker, specially in his DVD *Immemory.* Liner notes from the original English edition can be found here: http://www.chrismarker.org/immemory-by-chris-marker/

11 Arjun Appadurai, 'Archive and Aspiration', in J. Brouwer and A. Mulder (eds.), In*formation is Alive.* Rotterdam: V2_Publishing / NAI Publishers, 2003, pp. 14–25 (22).

Meanings of the 'anarchive'

We currently experience a transformation of the traditional archive that fulfils a primarily legal function as an institution based in public administration – a key formation for the bureaucratic nation-state. Sven Spieker (2008) has described how a range of art practices from the earlier avant-garde to more recent works have not only questioned the traditional status of the archive but also developed alternative memory practices such as the Dadaist montage, in fact: anti- or counter-archives that also include trash. [12] [13]

All of a sudden, the archive became an agency of popular culture itself. Popular culture in its widest sense is being archivised by academic projects of cataloguing its legacy, such as Milman Parry's phonographic and notational recording of former Yugoslavian oral poetry (as performed by the epic *guslari* singers) for symbolic transcription.

Let us have a close look at such practices. Whereas transcription into musical scores 'cleans' the recording of a popular song from all noise, the technical, signal-based recording visualises even the coughing of the singer at some point – which is an anarchival intrusion of the real (the body of the voice) that only technically sensitive media can spot.

Popular memory itself functions as an 'An-Archive'[14]. To what extend does the notion and definition of the archive still fit to this wild, disorderly assembling? Siegfried Zielinski's book *Archaeology of Media* accentuates the imaginary potentials of past inventions, the 'anarchaeological' element, which is maybe better understood in art academies than in hardcore academic analysis of media technologies.

Let me criticise for a moment the aesthetics of the 'anarchival', which misses the essence of the archive. The 'anarchive' has become notorious through installations like the above mentioned *File Room* of Muntadas.[15] Let us take care to use the term 'anarchive' not just as an aesthetically poetic term, but rather differentiate its meaning:

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12 Jussi Parikka, 'Archives in Media Theory: Material Media Archaeology and Digital Humanities', in David M. Berry (Hg.), *Understanding Digital Humanities*. Pelgrave: Macmillan, 2012, pp. 85–104 (101), referring to: Sven Spieker, *The Big Archive: Art From Bureaucracy*. Cambridge, MA: The MIT Press, 2008.

13 The apparently horizontal procedures in digital editing, in front of the standard procedures based on vertically-based power, have lead to fake archives which try to reemerge the Dadaist principle of the counter-archive. Uncyclopedia, Fikipedia or Mockipedia have been some of them.

14 For further readings on how popular memory works as a form of anarchive, the whole work of Mircea Eliade can be useful, specially *Cosmos and History: the Myth of the Eternal Return*. Princeton: Princeton University Press, 1954.

15 Anne-Marie Duguet, 'Inter-Data: Muntadas' "Anarchive"', in S. Mokhtari (ed.), *Les artistes contemporains et l'archive. / Contemporary Artists and Archives. On the Making of Time and Memory in the Digital Age*. Rennes: Presses Universitaires de Rennes, 2004, pp. 71–75.

a) There is already much more 'anarchival' dynamics in the traditional institutional archive than is commonly assumed by the public; no one knows this better than the archivists themselves.

b) There is an 'anarchival' element in the sense of unlocking, even: liberating the archive. This means, for example, not subjecting sound and images to verbal tagging exclusively any more (against the logocentrism in occidental memory administration). There are new technological options and organisational forms of the 'anarchive' concretely; that is: new algorithms can be applied to the structuring of data banks.

'Archival art' is not just an assembly; it is organised according to a higher order than simple 'database art'.

Re-affirming the archive (a critique of the 'anarchival' aesthetics)

Let me dare a critique of the aesthetics of what *appears* to be the 'anarchival' in contemporary media culture.

What in public discourse and especially in the artistic world is frequently called the 'archive' turns out to be, in most cases, a most imprecise metaphor for all sorts of collections and memory. But the archive as agency has never been primarily about memory, nor is it a collection (like a library or a museum), but rather a rule-governed extension to the functional (administrative) present. Even in virtual worlds, we discover the algorithms of 'provenance'. There is nothing 'anarchic' in the digital world; every

action here is based on precise algorithms.[16] Even random numbers produced by the computer are nothing but pseudo-noise. Thus it is completely justified that here is still a remarkable fascination with the 'secret archive'. The very term 'anarchival impulse' is an indication of the *insistence* of the archival rules and the fascination of the archival power. The current obsession with the 'anarchival' (which is not to be confused with the anarchic) reaffirms the traditional archive *ex negativo*. The sublime appeal of the archive is related the paranoid image of the archive as an institution that hides away ultimate secrets. The archive is not about memory at all; it is rather a powerful agency to separate the redundant from present by violent selection.

YouTube: An(-)archive?

While this workshop addresses archiving practices, appropriation, circulation and migration of images as well as new forms of image archives (be it artistic or non-artistic). It is in fact debatable whether moving image portals in the Internet like YouTube represent an 'archive' at all. Is YouTube an archive or rather anarchival?

A video portal like YouTube (in its neutral sense) is a repository (in archival terms).[17] 'The digital archive is by nature a database.'[18] Digital media platforms like Facebook, YouTube or Wikipedia represent searchable data banks rather than archives in the proper sense. YouTube is a random collection rather than a well-structured archive, since it is user-generated: a generative archive. Its order depends on the accidental meta-dating (tagging) by the content-providers, not on any archival logic. Its archival

logistics is rather the underlying structure of video database management. Archives of moving images, in the age of YouTube and UbuWeb, themselves get in motion.[19]

At www.ubuweb.com, the moving image contents cannot be algorithmically searched and accessed. The (literally) incalculable is the real challenge to the 'digital archive' – the limit of the Turing Galaxy itself.[20]

Being rather a media library, YouTube is not itself an archive. Preservation is neither its mission nor its practice.'[21] Rick Prelinger defines the Internet Archive in San Francisco itself as a 'non-profit digital library' [ibid.]. It is open access that distinguishes the library (or museum) from the archive, which tends to be secret by definition.[22]

Archival resistance: monumentality as *epoché*

The monumentality of the traditional archive, expressed in temporal terms, is rooted in its exception of records from immediate consumption in the present. With its massive going *online* the archive loses its traditional power: its *secrecy*, its informative temporal difference to immediate usage.

Archival endurance is being undermined when a record is not fixed any more on a permanent storage medium but takes places electronically; flow replaces the firm inscription. Suddenly, an old archival virtue turns out counter-strategically: archival resistance against complete mobility.[23] The archive should stay both inside and outside

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16 This can be seen through many atlases of cyberspaces, which have been recently created. Particularly interesting is the visual form of TextArc (www.textarc.org), which creates a visual representation of how words interact in a text. Martin Dodge, from the Cyber-Geography Research Group, created a list of these web-based visual representations at http://personalpages.manchester.ac.uk/staff/m.dodge/cybergeography/atlas/atlas.html. Newer examples can be found at http://www.visualcomplexity.com

17 For a discussion of this point of view see Frank Kessler and Mirko Tobias Schaefer, 'Navigating YouTube: Constituting a Hybrid Information Management System', in Snickars and Vonderau (eds.), 2009, pp. 275–91 (277).

18 Pelle Snickars, 'The Archival Cloud', in ibid., pp. 292–313 (304).

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19 See Ekekhard Knörer, 'Trainingseffekte. Arbeiten mit YouTube und UbuWeb', in *Zeitschrift für Medienwissenschaft*, vol. 5, no. 2, 2011, pp. 163–66.

20 On Turing Galaxy and Media: http://waste.informatik.hu-berlin.de/grassmuck/texts/tg.e.html

21 Rick Prelinger, 'The Appearance of Archives', in Pelle Snickars and Patrick Vonderau (eds.), *The YouTube Reader*. Stockholm: National Library of Sweden, 2009, pp. 268–74 (268).

22 For the complete presentation of the Internet Archive: http://archive.org/about/

23 An example of this archival resistance can be found at the Rosetta Project: http://rosettaproject.org

the 'Web 2.0' economies; both opening archival services and defending archival secrecy (the *arcanum*).

The so-called real-time Internet is a set of technologies and practices enabling users to receive information as soon as it is issued, rather than requiring they check a source periodically for updates.[24] Among this figures *instant messaging*; in McLuhan's sense the message of the communication medium here is: immediacy. With all that getting-in-motion of the traditional archive, it may now (as a retro-effect) rediscover its virtue as institutional monument: to take out data values from the ever accelerating circulation and electronic economy, to arrest and fix and maintain chosen items, thus turning floating records (documents, files) into monuments in Foucault's sense,[25] into spatio-temporal chronotopes (Michail Bachtin), taken out of time – *epoché* as sublation.[26]

Archival resistance against historical time

Emphatic storage waiting for (re-)circulation belongs to the logic of late capitalism and thus is part of a memory economy. In a contrary way, a virtue of the traditional archive has been exactly that it was outside historical time. This *refugium*, this temporal exile from history, is in fact a kind of archival resistance against complete mobility, which is the signature of modernist discourse. The old institutional archive served as bedrock against the complete mobilisation of records, as opposed to archives distributed online and their open access in the Internet of today. A gap opens between the necessity for archival services to the public *versus* defending archival secrecy.

It is with its becoming electronically *online* that the archive is being deprived of its traditional 'privacy' in the literal sense (from Latin *privare*), its *secrecy* from public discourse.[27] The former *archivum secretum* (be it in the Vatican,[28] be it in the case of the Prussian State Archives) is not just an old-aged power instrument to be overcome in favour of open access, but actually archival secrecy of a new kind can be detected, hidden within technology itself.

New 'anarchival' options in remembering digital images

The subject of this workshop is 'The Anarchival Impulse in the Uses of the Image in Contemporary Art'. After my critique of the loose, libertarian, metaphoric nostalgia of the 'anarchival' let me turn the same notion into something positive by redefining it in techno-mathematical terms. Let us thus focus on the quality of the image that differs radically from the symbolic regime of textuality. The 'anarchival impulse' can be reformulated more precisely in terms of mathematical stochastics that open once images exist in the digital regime. In virtual memory space, new options of sorting images arise that are different from textual logocentrism and the regime of metadata: image-based image retrieval (stochastic rather than categorical). At that point, the archive of an event that is still active can be addressed: the website of the Suchbilder conference organised in Berlin in 2002 to explore the nature of active *searching images* (www.suchbilder.de). By means of the wayback machine that takes regular snapshots of Internet websites, the history of this website can be traced back at *archive.org*. The text and the image of the website are kept, while the moving elements within, operated by Flash animation, escape the archiving mechanism.

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24 http://en.wikipedia.org/wiki/Real-time_web (Stand: 20. January 2010).

25 'Introduction' to his *Archaeology of Knowledge*.

26 Wolfgang Ernst has focused this topic many times at NetTime: http://www.nettime.org/Lists-Archives/nettime-l-0302/msg00132.html and http://amsterdam.nettime.org/Lists-Archives/nettime-l-0012/msg00115.html

27 'Tradition' in terms of collective memory itself is successively being replaced by technical memory that is linked more to the production circles of the present than to emphatic memory preservation from the past.

28 The use of photography in the web site of the Vatican Secret Archive (http://asv.vatican.va), as well as its structure on itself, is particularly rich on how opacity and privacy principles are still important there.

Walter Benjamin once identified the ephemeral human awareness of similarity[29] as the essence of lived experience – a mixture between vague impression and intentional perception.[30] What we see is the progressive sorting of distributed pixels according to colour similarity. Suddenly, the anarchival or rather para-archival impulse can be identified in the algorithms of similarity-based image retrieval.

Let us in that sense imagine 'experimental archives' different from the well-organised institutional archive. Quantised (digitised) images can be transformed into a vast image bank, which then, once unified as data-set, can be, subjected to image-based search operations such as the matching of similarities, object feature detection, statistical colour value comparison, etc. New kinds of search engines will not only answer the needs of knowledge retrieval but develop into a creative 'art of the archive' itself.

Thus media art may become avant-garde in a different, media-epistemological sense: experimenting with new forms of access to image down to its single pixels (*Forschungskunst*).

The strict basis for such experiments, though, is algorithmic knowledge. Once more: there is nothing 'anarchic' in the digital world. One instance where the dynamic image archive is at work is the IBM search engine called Query by Image Content (QBIC).

QBIC is a retrieval system for computer-based search for non-semantic aspects of a digital image (a mathematical operation), but can be supplemented by human help (tagging) for the semantic, iconological aspects.[31] [32]

An image-based search for images does not subject the collection of images to verbal logocentrism exclusively anymore, but it takes information itself as aesthetic criterion in the order of images – in the sense of André Malraux's 'imaginary museum'. The loss of material authenticity in technical reproduction in return leads to arriving at another

level of abstraction; its mathematical intelligence is based on technically standardised, unified alphabets (zeroes and ones). Art works are thus emancipated from 'style'.

Between image-based sorting of photography and logocentrism (George Legrady)

Tagging and meta-dating of images is a supplementary, belated symbolical operation applied to images. Automated sorting of images to a large degree still depends on such annotation: 'Computers can help us. But only after we help them first by feeding images descriptions.'[33] Since, once an image has been turned from a physical carrier into information by the act of digital scanning, it transforms into a mathematical representation devoid of semantics. The computer has to be trained in order to gain iconological knowledge; to teach the computer human 'thinking' has been the dead end of Artificial Intelligence. But let us turn this argument upside down. The apparent computational lack, the 'semantic gap' separating the Turing machine from human understanding, can be interpreted as its virtue, since it opens an aesthetics of parametrical sorting and archiving – opening unforeseen spaces of visuality.[34]

In optical scanning, the computer does not recognise an 'image' in its cultural (thus human) sense, but rather its elementary parameters: statistical colour distribution, edges, lines, shapes, etc. Stochastic- rather then library-oriented, classification-based sorting of images thus becomes feasible. At the same time, digitisation of images results in an ultimate addressability of each single picture element, the so-called pixel.

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29 'The perception of the similar passes fleetingly, perhaps it could be recovered, but in fact it cannot be retained as other perceptions.' Walter Benjamin, 'Lehre vom Ähnlichen', in same author, *Allegorien kultureller Erfahrung. Ausgewählte Schriften 1920–1940*. Leipzig: Reclam, 1984, pp. 125–30 (127).

30 'It is this ephemeral trait of the perception of the similar that here recalls the temporality of the perception of music and sound: without the technical possibility of repetition, hearing is subject to the uniqueness of its objects, which pass as fleetingly as the associations they evoke.' Johann Kroier (Berlin), 'Zwischen Impressionismus und Synästhesie – Strategien digitalen Musikdesigns für Naturdokumentationen', typescript, July 2012.

31 See Myron Flickner et al., 'Query by Image and Video Content. The QBIC System', in Mark T. Maybury (ed.), *Intelligent multimedia information retrieval*. Menlo Park, CA: American Association for Artificial Intelligence, 1997, pp. 7–21.

32 The Hermitage Museum web site stores a QBIC-based browsed which can find color palettes and layouts through the museum database (http://www.hermitagemuseum.org/fcgi-bin/db2www/qbicSearch.mac/qbic?selLang=English). Photo libraries such as Getty Images are also using the same system now.

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33 Lev Manovich, 'Metadating the Image', in same author et al. (eds.), *Making Art of Databases*. Rotterdam 2003, p. 3.

34 'ungeahnte Räume der Visualität': Gottfried Boehm, 'Jenseits der Sprache? Anmerkung zur Logik der Bilder', in Hubert Burda and Christa Maar (eds.), *Iconic Turn. Die neue Macht der Bilder*. Cologne, 2000, p. 45.

Addressability is a central characteristic of the archival operation;[35] thus we can say that by digitisation the image becomes essentially archival.

Even analogue movies, which, as we know, consist of sequences of discrete photographic frames, can thus be transformed into a vast searchable data-set.[36]

The correctness of computer memory is its essential lack when compared to human remembrance operations,[37] which rather distort memories: according to the inventor of the graphical user interface in computing, Licklider (1960), the human is a 'fuzzy, noisy device', but in turn gifted with the capability of parallel signal and data processing. From that results a different attitude towards image collections: '"Fuzzy" computer-sorting will begin to make useful comparisons of similar (but not identical) images on the basis of new protocols. Or should we rather "work harder on the alphanumeric labelling and keywording of pictures […] aided by re-born analogue machines?"[38] Shall we aim at closing the 'semantic gap' between the anarchivic element within humans and computing? Shall we train computers to behave counter-logically?

Quantum computing comes close to this different approach; in fact, all kinds of 'analogue' computing does. Human memory of images is closer to the hologram than to photography. Associative memory practices virtual 'ghost imaging'; it operates rather with interference of wave patterns than with discrete symbols. 'The operation of the brain is physically quite analogous to optical processing' itself. [39]

Based on such neuro-aesthetic insights, the prosopopoietic, traditionally 'dialogic' rhetoric of the archive is currently being replaced by operational archival interaction, as illustrated by *Pockets Full of Memories*, an online and museum installation by the media artist George Legrady in which the audience *creates* an archive by contributing a digitally scanned image of an object in their possession during the exhibition visit: http://www.pockektsfullofmemories.net[40]

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35 See Claus Pias, 'Maschinen/lesbar. Darstellung und Deutung mit Computern', in Matthias Bruhn (ed.), *Darstellung und Deutung. Abbilder der Kunstgeschichte*. Weimar, 2000, p. 129.

36 SEMEX (Semantic Media Explorer) is a Research Project by the Hasso Plattner Institut (www.hpi.uni-postdam.de) of the Universität Postdam. It is a demonstrator that combines the latest media analysis processes to provides optimal access to video content. Further information: http://www.yovisto.com/video/19104

37 See: Douwe Draaisma, *Die Metaphernmaschine. Eine Geschichte des Gedächtnisses, Darmstadt*. Wiss: Buchgesellschaft, 1999, pp. 165ff.

38 Duncan Davies, Diana Bathurst and Robin Bathurst, *The Telling Image. The Changing Balance between Pictures and Words in a Technological Age*. Oxford: Clandendon, 1990, pp. 64ff.

39 P. J. van Heerden, *The foundation of empirical knowledge*. Wassenaar, 1968, p. 29.

40 Although this was the original site name, the domain has expired. Some additional information on the exhibition can be found in the already mentioned site http://www.georgelegrady.com

In multi-media space, the act of reactivating the archive can be dynamically coupled with feedback. Interaction is an aspect Bertolt Brecht already pointed at in the 1920s for the emerging medium of radio, insisting that it can technically be used – when provided with a feed-back channel – in a bi-directional way by the receivers to communicate instead of being unilaterally subjected to central broadcasting.[41] The unidirectional communication of books still dominated the user experience. With different *hierarchives*, a network is not a text any more, rather an archi(ve)texture.

The 'dynamic archive', in fact: the sorting engine of Legrady's installation is based on a self-organising map, known in computer science as the Kohonen algorithm.[42]

The Kohonen algorithm corresponds with neuro-scientific evidence: 'The self-organising map captures some of the fundamental processing principles of the brain, especially of the experimentally found ordered maps in the cortex.'[43]

In terms of informational communication theory the *self-organising map* is 'an adaptive semantic memory model […] It is dynamic, associative and consists […of] adaptive prototypes'.[44]

This corresponds with Vannevar Bush's insight, which became essential for the development of hypertextual knowledge: 'Memory is transitory.'[45] Bush in 1945 formulated his design of a Memory Extender (MEMEX), a memory machine that is not oriented toward the artificial taxonomy of libraries but at human brain functions that operate less logically but associatively.[46]

The Self-Organising Map translates the keywords (semantic information) and object description and turns them into numbers; this is how the mathematically determined

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41 Bertolt Brecht, 'Der Rundfunk als Kommunikationsapparat', in *Gesammelte Schriften*, vol. 18. Frankfurt/M, 1967, pp. 117–34.

42 See Andreas Teckentrup, 'Einsatzmöglichkeiten selbstorganisierender neuronaler Netze in der Wirkstofforschung', diss. Essen, 2000; *online* http://www2.chemie.uni-erlangen.de/services/dissonline/data/dissertation/Andreas_Teckentrup/html/teckentrup00.html (accessed 20 August 2012).

43 Timo Honkela and Juha Winter, *Simulating Language Learning in Community of Agents Using Self-Organizing Maps*. Helsinki: University of Technology, Publications in Computer and Information Science, Report A71, 5 December 2003.

44 Some present examples of archi(ve)textural processes and self-organizing maps can be found in internal projects and external sites collected at http://www.bestiario.org

45 Vannevar Bush, 'As We May Think' [*1945], *online* http://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/

46 The MIT/Brown Vannevar Bush Symposium was hosted at MIT on October 12-13, 1995, to celebrate the 50th anniversary of Vannevar Bush's seminal article "As We May Think", published in the Atlantic Monthly, July 1945. There were several speeches on the influence and the current status of Bush's ideas. The video archive of the Symposium can be found here: http://www.dougengelbart.org/events/vannevar-bush-symposium.html

organisation happens. 'Many of the other metadata also influence the location, for instance, the date, possibly the object's origins […].' [e-mail, 29 July 2010].

Legrady's installation has been a mixture of both human (semantic tagging) and inhuman (algorithmic) sorting of images. In his more recent, technologically updated version called *Cell Tango*, Legrady (together with Angus Forbes) displays a projection of constantly changing cell-phone photos. The photos are first sent by individuals (to pix@celltango.org), and then projected rhythmically over a large, black screen in a variety of patterns. Fresh snapshots swiftly adjust to that mosaic according for formal criteria (image-based matching) and according to their tags (meta-data), mingling with photos taken from Flickr, the photo-sharing web portal. In one of the four modalities of the installation, 'Cell_Bin', the most recent images are placed on the black screen first, and an algorithm randomly distributes them. The space left in between is successively filled by smaller incoming photographs. These loosely coupled patterns evolve dynamically. In this form of media art, algorithmic information is the artist's main medium.[47]

Already Heinrich Wölfflin's *Kunstgeschichtliche Grundbegriffe* (1915) aimed at formal criteria for sorting art historical images according to criteria like 'open' vs. 'closed' form,[48] and Aby Warburg once created a dynamic collection of photographic reproductions of historic works of art called the *Mnemosyne Atlas*. Today, this vision can be realised by automatic image-based image grouping.[49] Such a clustering successively liberates image configurations from word-based *tagging*. Even commercial digital image sorting software for private photography sometimes offers the display of histograms (diagrams displaying the statistical distribution of colour in images); this is a perfect training in image-immanent navigation of the visual archive.

Temporalising the archive: from space-based to time-based archives

While the traditional archive of predominantly textual records represents a spatial order ('l'espace de l'archive', as described by the historian Michel de Certeau), today the audio-visual archives themselves take place in time, beyond the scriptural regime. We observe the transformation of the classical, datacarrier-based, material storage-space into an archive in electronic motion, in electromagnetic ephemerality and latency. The gain of flexibility and computability is paid for with a dramatic loss of durability.[50]

When a few years ago the building of the Cologne Municipal Archive collapsed, it became apparent that most records, though having become dirty and mutilated, materially survived this catastrophe, astonishingly resistant against the pressure of stones and water. In a similar way, the first-generation audiovisual storage media turned out to be surprisingly resistant against temporal entropy (like Edison-cylinders and gramophone records, as well as daguerreotypes, photographic negatives and film on celluloid).[51]

More delicate is the destiny of cultural memory based on electromagnetic storage; digital media, finally, tend to divest themselves completely from their material embedding – loosing the ground by becoming technically 'virtual'.

Traditional storage media have been physical inscribed (*graphein* in its old Greek sense): by writing the information to be stored literally informs the device.[52] Latent storage devices such as magnetic tape for audio and video, on the contrary, only reveal their memory content in the dynamics of the electro-magnetic field as induced signals – an 'archive' that human eyes cannot decipher any more immediately. Electronic storage media take place in a sphere that is different from the scriptural regime of the classical archive, but this a regime, on the level of alpha-numeric codes, that unexpectedly returns in techno-mathematical machines. This return is a temporal figure that cannot be reduced to the linearity of cultural history; we are confronted rather with a media-archaeological contemporalisation, a kind of recursion as recall. With computed binary

47 An argument of George Fifield (Boston Cyberarts Inc.), 'Can you see me now?', in *The Boston Globe*; online: http://www.wellesley.edu/DavisMuseum/exhibitions/exhibitions_celltango.html (accessed August 2010).

48 See Wolfgang Ernst and Stefan Heidenreich, 'Digitale Bildarchivierung: der Wölfflin-Kalkül', in Sigrid Schade and Christoph Tholen (eds), *Konfigurationen. Zwischen Kunst und Medien*. Munich: Fink, 1999, pp. 306–20.

49 Van Huisstede, 1995, p. 158: 'Wenn es jemals ein Projekt gegeben hat, das in einem elektronischen Medium wie der CD-ROM angemessen zu präsentierten wäre, dann ist es der Mnemosyne-Atlas.'

50 In 1994, the Research Libraries Group and the Commission on Preservation and Access formed a research group on what needed to be done to ensure long-term preservation and continued access to the digital records. The final report (http://www.clir.org/pubs/reports/pub63) became a fundamental document in the field of digital preservation that helped set out key concepts, requirements, and challenges.

51 Paolo Cherchi Usai has worked widely on how the death of cinema is related to the reel preservation in archives. More information at http://www.nietzschecircle.com/Death_Cinema_Hyp_Jun_08.pdf

52 Ira M. Sage, 'Making Machines Remember', in *Product Engineering*, Bd. XXIV (April 1953), pp. 141–49 (141).

data, the 'archival' symbolical regime returns into audio-visual media themselves, but in a different – numerial – way.[53]

Let us therefore define trans-alphabetical archives as data spaces where the code is not predominantly based on the phonetic alphabet any more. The message of the archive medium in the traditional sense *is* the alphabet, implying historiography; nowadays it is the numerical. This implies a profound mathematisation (instead of narratisisation) of the archival (in French: *conter* instead of *raconter*, in German: *zählen* instead of *erzählen*).

Flexible access to the chrono-archive

With an extended notion of 'performance', we arrive at all kinds of arts that use audio-visual recording media for storage. From this results an archival challenge.

Let us refer again to the epistemological notion of 'archive' as expressed by Foucault: which rules govern what can be expressed and remembered (i.e., stored) at all? It is not only human archivists any more, but in a higher degree than ever it is technologies on which the readability of such documents rely. The archival record has become an electromagnetic latency. Dynamic access needs a flexible tool that allows for the coexistence of different orders without destroying the database structure. From the question of how to archivise performances results in the performative archive as form of re-enactment. Not only the target, but as well the very mediality of the archive has been extended, resulting in discovering and techno-mathematically realising new options of flexible access.[54]

Once upon a time, with the arrival of chrono-photography (Muybridge, Marey) and with cinematography, an impossible occidental dream came true: to catch the dynamic element in movement, the kinetic.[55] Technical media (both for acoustic and visual movements) have thus created a new kind of archiv(e-)ability. The archive itself gets in motion; the storage of kinetic objects results in new types of retrieval that are based on differentiation along the temporal axis. Dynamic access now replaces the static classification of the traditional catalogue, just like statistical probabilities have replaced particular knowledge in information theory, and pattern recognition replaces alphabetical identification towards open forms of adapting knowledge.

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53 See Vilém Flusser, *Die Schrift. Hat Schreiben Zukunft?*. Frankfurt/M: Fischer, 1992.

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54 See, e.g., the Project description of: map – media | archive | performance. *Forschungen zu Medien, Kunst und Performance*, January 2009. Project team: Babara Büscher (Hochschule für Musik und Theater Leipzig/Dramaturgie), Franz-Anton Cramer (Hochschulübergreifendes Tanz-Zentrum Berlin), Thomas Bitterlich (Entwicklung/Redaktion), René Damm (Entwicklung/Redaktion). The project is a joint cooperation of the Hochschule für Musik und Theater 'Felix Mendelssohn Bartholdy' Leipzig (HMT) and the Hochschule für Technik, Wirtschaft und Kultur Leipzig (HTWK).

55 A very complete overview of the work of Eadweard Muybridge can be found at http://www.stephenherbert.co.uk/muybCOMPLEAT.htm

The chrono-sonic dimension of the archive

The archive is commonly perceived as a place in silence. The documents and the images therein usually do not speak by themselves.

Where is the 'sound' of the archive; its memory dimension in terms of 'acoustic space' as once defined by McLuhan?[56] This argument serves as a reminder of a different temporal regime and aesthetics that is bound to sonic memory. A different kind of 'archival times' emerges here.

Let us take the 'sonic' dimension of the image archive not in its acoustic sense, but rather referring to its essential quality: it is radically time-based, as once indicated by Bill Viola's explicit definition of the electronic video image as 'the sound of one line scanning'.[57]

Benjamin defined the Aura as peculiar interlacing of time and space.[58] The archival 'aura' in this sense does not simply emanate from its air of secrecy and power-relation; it stems from a specific temporality as well: in fact, its temp*aura*lity.

Photography, literally understood by Roland Barthes (*La camera lucida*) as a photonic emanation of an object, memorises rays of light to the viewer in the present – a delayed transfer of what otherwise would have vanished into the dark. This inscribes physical tempor(e)ality into the image. In addition, chrono-photography then performed the temporal archivisation of life itself.

The archival essence of technical cinematography is mostly hidden to human perception. Let us finally have a look a digital video compression, which is in fact a delicate archival operation based on micro-temporal events, a qualitative reduction of movement; only parts and sections of the image are updated at a temporal moment. MPEG technologies for video compression transform the plenitude of movement into partial sampling of stills and below, dividing each frame into small blocks of pixels in order to analyse changes from one frame to the next. A group of frames is established around one key frame at intervals. On the basis of key frames, predictive pictures are established in between to predict the location of each block of pixels. 'Movement only takes place through updates of certain sections of the image, while the rest of the frame is replayed as before.'[59]

In the recent media installation *Voice of Sisyphus* under Legrady's artistic direction, such methods of 'digital archaeology' (operative image analysis) are being used to 'sonify' the image-as-memory itself.[60] A black-and-white photographic image from the 1970s displaying a hotel scene 'At the Bar' is filtered by a computer program, which then reads the segments and produces sounds out of them resulting in a continuously evolving composition. This is not deliberate, but an algorithm-based, rule-based, in Foucauldean terms *archival* transformation,[61] giving a voice to the image, giving sound to the archive: http://vimeo.com/34859885

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56 In 1969, *Playboy* magazine interviewed Marshall McLuhan about his idea of "acoustic space", among many other interesting subjects: http://www.nextnature.net/2009/12/the-playboy-interview-marshall-mcluhan/

57 Bill Viola, 'The Sound of One Line Scanning', in Dan Lander and Micah Lexier (eds.), *sound by Artists.* Toronto, Banff: Art Metropole & Walter Phillips Gallery, 1990, pp. 39–54.

58 'A strange web of space and time: the unrepeatable appearance of a distance, as close as it can be', in Walter Benjamin, 'Kleine Geschichte der Photographie', in Rolf Tiedemann and Hermann Schweppenhäuser (eds.), *Gesammelte Schriften.* Frankfurt/M.: Suhrkamp, 2nd ed. 1989, pp. 368–85 (378).

59 Trond Lundemo, 'In the Kingdom of Shadows. Cinematic Movement and Its Digital Ghost', in Pelle Snickars and Patrick Vonderau (eds.), 2008, op. cit., pp. 314–29 (316ff).

60 *Voice of Sisyphus* is a Legrady's work related to his 2011 exhibition *Refraction*. Some photos of the exhibition and the catalog itself can be found at http://www.mat.ucsb.edu/g.legrady/glWeb/Projects/re/refraction.html

61 Ryan McGee realised the image analysis, audio and spatialisation software, and Joshua Dickinson assisted with the audio composition software. Voice of Sisyphus: An Image Sonification Multimedia Installation was at: 18th International Conference on Auditory Display (ICAD-2012), 18–22 June 2012, Atlanta, USA.

Other titles

25. Georges Didi-Huberman
Pobles exposats, pobles figurants

26. John Roberts
'Fragment, experiment, dissonant prologue': modernism, realism and the
photodocument

27. Ana Janevski
'We can't promise to do more than experiment.' On Yugoslav experimental film and cine
clubs in the sixties and seventies

28.Peter Osborne
'October' and the Problem of Formalism'

29.Wolfgang Ernst
'Aura and Temporality: The Insistence of the Archive'

About the author

Wolfgang Ernst is Professor of Media Theories at the Institute for Musicology and Media Studies, Humboldt University, Berlin. He is the author of several works in the area of media archaeology and archiving, including *Das Rumoren der Archive: Ordnung aus Unordnung* (2002), *Im Namen von Geschichte: Sammeln, Speichern (Er)zählen* (2003) and *Das Gesetz des Gedächtnisses. Medien und Archive am Ende (des 20. Jahrhunderts)* (2007). His books *Digital Memory and the Archive* (edited by Jussi Parikka) and *Chronopoetik. Zeitweisen und Zeitgaben technischer Medien* have been published in 2012.

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Quaderns portàtils

Portable Notebooks is a line of publications available free of charge through the Internet. In general, the texts proceed from lectures and seminars that have taken place at the MACBA, as well as from exhibition catalogues. This and other issues of the *Quaderns portàtils* collection are available on the Museum website.

Colophon
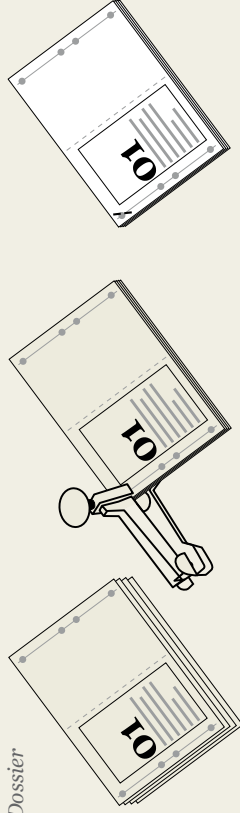
Tres maneres d'enquadernar els teus Quaderns portàtils

Tres maneras de encuadernar tus Quaderns portàtils

Three ways of binding your Quaderns portàtils

QP

Dossier grapat
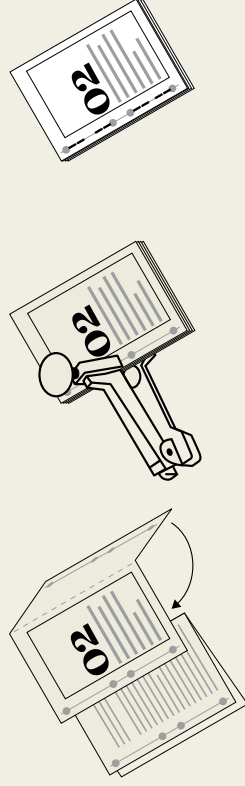Dosier grapado
Stapled Dossier

Enquadernació japonesa grapada
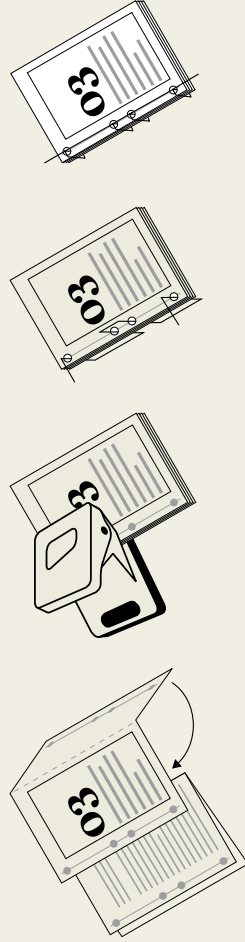Encuadernación japonesa grapada
Stapled Japanese Binding

Enquadernació japonesa cosida
Encuadernación japonesa cosida
Sewed Japanese Binding

Llenceu aquest manual d'instruccions una vegada utilitzat (no enquadernar).

Desechar este manual de instrucciones una vez utilizado (no encuadernar).

Throw away this instructions manual once used (do not bind).