Art and Digital Records: Paradoxes and Problems of Preservation

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RÉSUMÉ La deuxième phase d'InterP ARES comprend une enquête étendue sur la théorie et la pratique de l'art. Dans le contexte des études précédentes sur les documents d'archives et l'authenticité dans le milieu des sciences de l'archivistique, on peut être surpris de constater que cette phase a influencé la pensée des chercheurs par rapport aux nouvelles sortes d'af fichages électroniques à caractère documentaire qui deviennent de plus en plus courants dans le monde des af faires, du gouvernement et des sciences. Elle a aussi permis d'apporter de nouvelles dimensions au concept de l'authenticité pour ce genre d'af fichage, en se référant au concept de la performance, telle que définie par les penseurs de l'art. Les études de cas d'InterP ARES 2 et les analyses conceptuelles ont révélé la complexité de ces documents numériques à caractère archivistique, influencés comme ils le sont par les contextes culturels et technologiques, ainsi que par les contextes juridiques et administratifs que les archivistes connaissent déjà. L'ironie du sort veut que cette clarification montre la complexité de la préservation de l'art et des documents numériques à caractère artistique.

ABSTRACT The second phase of InterP ARES included an extensive investigation of art theory and practice. In the context of previous studies of records and authenticity in archival science, this is perhaps surprising, but it influenced the researchers' conceptions of the new sorts of record-like electronic displays that are increasingly evident in business, government, and science. It also suggested new dimensions to the concept of authenticity for such displays, by referring to art theorists' conception of performance. InterPARES 2 case studies and conceptual analyses showed how complicated these digital record-like documents are, embedded as they are in rich cultural and technological contexts, as well as the juridical and administrative ones familiar to archivists. Ironically , this clarifies how dif ficult it is to preserve both art and art-like digital records.

As its acronym declared, InterP ARES (International Research on Permanent Authentic Records in Electronic Systems) aimed to be an interdisciplinary inquiry into the preservation of authentic records in electronic systems. Indeed, the recently concluded second phase of the project enlisted a remarkable range of participants outside of archival science, which naturally defined the terms of the research. Notably , scholars and creators of music, photogra-

phy, film, dance, theater, and literature made the creative and performing arts a significant focus. [1] They were concerned that digital artworks, created to express and reflect contemporary culture, were being lost – not only because technology keeps changing, but also because their very nature makes it difficult to distinguish the genuine and complete from the fake and fragmentary. The fruits of the InterPARES 2 collaboration were plentiful, but tinged with irony. Some of the refinements it proposed to the concept of a record, which is fundamental to modern systems of business, government, and science, reflected ideas about art that are antithetical to such systems. Reciprocally, in seeking how to preserve digital records, the project clarified why digital art is so hard to preserve.

To appreciate these paradoxes and problems of digital preservation, it is helpful to begin with a synopsis of the theoretical basis for the entire project. The science of diplomatics articulates a conception of the document that is grounded in the legal, administrative, and religious culture of the Middle Ages, from which emerged the institutions and beliefs that support modern systems of production, ownership, status, and consumption. [2] These systems depend on recalling past actions, events, and relationships, for example, to establish what agreements have been made, or what rights have been bestowed. A document that has been set aside to facilitate such recall is called a record. So, by definition, a record entails preservation: it is just that kind of document that can be preserved to present all information needed for reference or action in the future. Diplomatic analysis identifies the characteristics that make the document a record, and thus make it preservable for such purposes. It is especially concerned with those elements that attest to its identity and integrity, that is, its authenticity. This conception is complemented by archival theory, which treats records as parts of aggregations within archives. From this combined perspective, a record is characterized by "a fixed documentary form, a stable content, an archival bond with other records … and an identifiable context."[3]

The recent, rapid computerization of society has raised concerns about whether digital documents can also be preserved as authentic records. Some

1   InterPARES also studied problems of authenticity in other, non-artistic digital systems, for example in science (the data of Canada's first space telescope), CAD/CAM engineering and manufacturing records (assessed in Case Study Nineteen by Kenneth Hawkins), and government records. Reports on all the InterPARES 2 case studies may be viewed at http://www.interpares.org/ip2/ip2_case_studies.cfm (accessed 19 January 2008).

2   Luciana Duranti, *Diplomatics: New Uses for an Old Science* (Lanham, MD, and London, 1998).

3   Heather MacNeil et al., "Authenticity Task Force Report," in *The Long-term Preservation of Authentic Electronic Records: Findings of the InterPARES Project*, ed. Luciana Duranti (San Miniato, 2005), pp. 19–65.

of these concerns stem from the obvious impermanence of digital storage media and software standards. But they also call into question whether *any* digital documents could be records, and therefore preservable. For instance, do they possess "fixed form" and "stable content," as the accepted definition demands? There are good reasons to doubt that they do: strings of binary digits – the substance of every type of digital document – do not manifest form as paper documents do, and traditional ideas about stability do not seem to apply to objects that are constantly copied and even altered across changes of computing environments. In the first phase of InterPARES, this question was resolved by distinguishing the "manifested" record from the "digital components" that had to be processed to display the record:

An electronic record is an object that is output from a computer system, typically on a screen, when needed by a human, or in interactions between systems, but cannot be stored in the form in which it is seen or used … Instead, it is stored as one or more strings of bits that require processing by a computer to be seen or used again as a unit. Thus … preserving an electronic record consists of preserving the ability to reproduce it. A system that preserves electronic records must be able to identify and locate all the digital components of each record and apply the appropriate software to each component to reproduce the record.[4]

However, there are certain classes of digital documents in which the content is not absolutely fixed, but may vary within bounds determined by the creator. They include visual displays whose content is affected by user input or by constantly varying data supplied from outside the system. These classes motivated further revisions to the theoretical definition of a record to encompass all variability of form and content. InterPARES 2 case studies also lead to the recognition that a digitally-stored record includes not only the data, which must be processed in order to reproduce the manifest record, but also the rules for processing the data, including rules that enable variations in the content or form of the manifested record. [5] Fixed form in this context is thus revised to mean "those aspects of form which the author or the writer intended or could control"[6]; so "the form of the record is that of the document manifested by the correct processing of the stored digital components."[7]

Many of the InterPARES 2 case studies that informed these theoretical revisions were concerned with artistic activities. From a traditional point of view, this may seem counterintuitive, even misguided. After all, project direc-

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4   Luciana Duranti and Kenneth Thibodeau, "The Concept of Record in Interactive, Experiential and Dynamic Environments: the View of InterPARES," *Archival Science,* vol. 6, no. 1 (March 2006), p. 19.

5   Ibid., pp. 51–52.

6   Ibid., p. 48.

7   Ibid., p. 51.

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tor Luciana Duranti herself had ruled out diplomatic analysis to determine the authenticity of "documents expressing feelings and thought and created by individuals in their most private capacity, [because] the inner freedom of human beings is such that a strict observance of rules cannot be expected" – surely an apposite description of art. [8] Moreover, diplomatics defines a record as a *by-product* of an activity, set aside for reference, but it regards an artwork as a publication, a *final product* "intended for communication and/or dissemination to the public at large" that can be experienced without explicit connection to the documents associated with it.[9]

So why did InterPARES 2 study artistic documents? First, many such documents are manifested in systems that are dynamic, interactive, and experiential, precisely the qualities that were provoking questions about accepted concepts in the business and government systems that are the normal concern of archivists. Second, because the term "authenticity," which has a precise meaning in diplomatics, has various other senses in the arts; researchers hypothesized that these connotations would cast some additional light on aspects of interactive and dynamic systems (artistic or otherwise) that were relevant to preservation. Indeed, other archival scholars were already using artistic analogies to describe digital documents, for example, as "performances."[10] Lastly, preserving cultural heritage seemed as important as keeping trustworthy business and legal records.

Some of the ways that the study of the arts contributed to the project's results are evident in the conceptual analysis described by the InterPARES 2 final report.[11] Philosophers of aesthetics have long made a distinction between two broad classes of artworks, and thereby nuanced the concept of "authenticity."[12] When an artwork is "singular" – a physical object, like a painting – authenticity means "original." A complete and reliable record of what happened to it after it left the artist's hands may establish its identity and integrity. So much is familiar to archivists. But the concept of authenticity is subtler for "multiple" artworks, which can exist at more than one place at any time; examples include novels, photographs, music, plays, dances, and films.

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8 Duranti, *Diplomatics*, p. 42.

9   *The InterPARES 2 Project Glossary*,
     http://www.interpares.org/ip2/display_file.cfm?doc=ip2_glossary.pdf&CFID=6020&CFTO
     KEN=1954941 (17 October 2007), s.v. "publication" (accessed 19 January 2008).

10   Helen Heslop, Simon Davis, and Andrew Wilson, *An Approach to the Preservation of Digital Records* (Canberra, 2002), http://naa.naa.gov.au/images/an-approach-green-paper_tcm2-888.pdf, (accessed 19 January 2008), p. 9.

11   John Roeder and Philip Eppard, "InterPARES 2 Project – Domain 2 Report: Authenticity, Reliability and Accuracy of Digital Records in the Arts, Science and Government" (2007), http://www.interpares.org/display_file.cfm?doc=ip2(pub)domain2_final_report.pdf (accessed 22 October 2007).

12   Guy Rohrbaugh, "Ontology of Art," in *The Routledge Companion to Aesthetics*, 2nd ed., eds. Berys Gaut and Dominic McIver Lopes (New York, 2005), pp. 241–54.

No instance of a multiple artwork is an "original," but the word "authentic" is still used to refer to the link between each instance and the work' s author. For example, in literature, printmaking, and photography , the link involves a "master" object that is approved by the author , and from which are produced all objects that are authentic instances of the work. Still other sorts of artworks, like music and plays, are ephemeral experiences that are produced by performance – an execution of instructions, specified by the artist, using instruments (if any), specified by the artist. In one sense, "authenticity" of a work for performance still involves the link between the author , and the instructions and instruments. But musicians and actors also speak of "authentic performance" as "a performance that reproduces all that is constitutive of the work's individuality."[13] A performance is relatively authentic, in the latter sense, to the degree that the performer executes the instructions accurately and conventionally, and to the degree that the instruments resemble what the author specified.[14] There is controversy about whether such authenticity is desirable or even possible, and it can be confusing to archivists who think about authenticity as an absolute property of fixed physical records.

Nevertheless, this conceptual analysis helps to clarify the nature of records manifested in non-artistic digital systems. A display that testifies to an action, event, or state of af fairs – a record, although ephemeral – is constituted from data by a rendering system controlled by instructions, just as a musical work is a realization of the musical score, and just as the display of some minimalist sculpture is an assemblage of mass-produced materials according to the artist's instructions.[15] The authenticity of a manifest record must entail some quality like "performance authenticity ." Unless it appears as the author intended, it cannot completely fulfill its memorial purpose, no matter how aesthetically pleasing it is. To take an example from business, if what purports to be the record of a transaction is displayed too briefly , or in an illegible size or colour, it cannot be useful as a reference. Concomitantly, the authenticity of documents that enable the manifestation of the record (the executable computer code, the data that the code processes, the operating-system software) is not simply a matter of informational content, but also of the documents'

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13 Stephen Davies, "The Ontology of Musical Works and the Authenticity of their Performance," in *Themes in the Philosophy of Music* (New York, 2003), p. 74.

14 This simplified definition addresses the relation of a performance to the author   's specifications rather narrowly. More generally, a performer has latitude to distinguish her performance of a work from others', for example, in her timing and emphasis. So she can be regarded as the author of her performances of another author's work, and such performances are authentic not only if they are true to the author's specification, but also only if she is making them.

15 For example, Carl Andre's *Equivalent VIII,* displayed at the Tate Modern Bankside gallery, is specified as a particular arrangement of 120 ordinary fire bricks. The artist authenticates each instance of his work by issuing a certificate and maintaining an owner registry . See www.carlandre.net (accessed 19 January 2008).

function.[16] All components need to interoperate to produce the manifest record. The authenticity of its manifestation (that is, of its "performance") depends upon preserving instruments and instructions that are functional equivalents of the originals.

InterPARES 2 Case Study (CS13) *Obsessed again ...* , a composition for bassoon interacting with sound-producing electronics, illustrates the difficulty of achieving such authenticity.[17] This work is specified by a variety of documents that were intended to enable its performance: a musical score, notated according to currently, well-defined conventions; a verbal specification of the requisite computational and sound-processing devices, and how to position and connect them; and software to control the devices, encoded in a proprietary, idiosyncratic format. In the decade since the work was created, many of the technical devices became obsolete, and the software ceased to function on newer computers. Even more problematic (and a characteristic of this sort of musical work), the documents did not explicitly specify the interactive aspects of the work – for example, when and how the computer would respond to the bassoon. These had to be inferred by analyzing the source code of the obsolete controlling software, which was only possible because the syntax of that code was still known.

InterPARES 2 researchers painstakingly migrated the digital components of this work from one technological platform to another, then performed the results for the composer. He was asked to authenticate it, that is, to determine whether the performance reproduced all necessary characteristics of the work, and thus whether the new digital components could be said to authentically "preserve" the work. His response was revealing. He said, "I like it, but it's not mine." He was not satisfied with the types of sounds that the computer produced, because they did not have the same quality, and did not swell and fade like the originals. To him, the experience was like hearing a Beethoven symphony played on a toy piano. Since the result was too far from what he originally intended, the work had not been authentically preserved.

One might conclude that the composer should have been involved throughout the process of reconstruction to ensure authenticity. However, his subsequent actions raise questions about such a strategy. He decided to migrate the composition himself, and the result sounded much different from the recording of the original work – and from the reconstructed performance!

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16   George Brock-Nannestad, "A Phenomenological Approach to Film Restoration: A Discussion of Possibilities," *Arts and Artifacts in Movie: Technology Aesthetics, Communication* 2 (2005), p. 173.

17   This is the complete title of the case study. The entire report on this case study, by J. Scott Amort, is available on the InterPARES 2 website at http://www.interpares.org/display_file.cfm?doc=ip2_obsessed_again(complete).pdf (accessed 19 January 2008). However, the migration of the work was attempted after the report was completed, so its details are reported here for the first time.

He had taken advantage of new technology to incorporate new sounds into the work that were not possible earlier . Although he regarded the result as the same work (keeping the title, and making only the new version available to performers), in effect he had created a new version of the work, related to, but distinct from, the original. Its performances are authentic to the extent that they match his new specifications, but the original version of work still languishes in a state of inauthentic preservation.   This is unfortunate for the future audiences and critics who want to understand the genesis of this work and its place in the history of music.

This experience generalizes all too readily . In every case study of the arts by InterPARES 2, the only way to determine whether a work had been or could be authentically preserved was to refer to the authority of the creator   . But when the artist is gone or changes his mind, who is competent to authenticate, and what information do they need? Recordings can provide some reference point, but they may not be able to capture many aspects of a performance, for example, the "spatialization" of sound at a concert, or the movements of performers in the dark (as in *Waking Dream*, the subject of another case study).[18] Authentication is especially difficult for interactive and dynamic works. They can have so many possible authentic manifestations that it is not possible to judge whether any particular straying from the recording would render a manifestation inauthentic.

Perhaps one is willing to trust one-time judgments of artistic authenticity to disinterested and inexpensive academic scholars. But consider the more general problem of authenticating the manifestations of non-artistic digital documents. If determining the authenticity of a document requires determining whether it instantiates a fixed form, and if fixed form (to accommodate interactive and dynamic systems) is redefined as "those aspects of form which the author or the writer intended or could control," then in the author   's absence that intent must be unambiguously manifested, and impartially and competently judged. In other words, if manifest records are like performances, so that their form requires "correct processing of the stored digital components," then authentication requires procedures for judging accuracy . InterPARES research into artworks, in which the author 's intent is most obviously determinative of the identity of the objects that need preserving, highlights the same need in non-administrative contexts.

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18   "Spatialization" refers to the way that the sound sources for a performance, such as musical instruments and loudspeakers, are distributed around the concert hall. Stereo recordings cannot correctly represent spatialization except in one dimension. Information about *Waking Dream*, a multimedia theatre piece for dancers and infrared-sensing video equipment, can be found at http://hct.ece.ubc.ca/research/wakingdream/index.html, and the InterP ARES 2 final report about its case is located at
http://www.interpares.org/display_file.cfm?doc=ip2_waking_dream(complete).pdf (accessed 19 January 2008).

InterPARES 2 theorists also proposed updating the diplomatic concepts of "stable content" by distinguishing different sorts of data that compose a digital document. They posited that unlike traditional paper documents, in which all the information affixed to the medium is content, digital documents may include not only content data (which becomes the content of the manifest document), but also form data (which instruct the system how to manifest the content data), and composition data (which tell the system what form and content data belong to which document).[19] Not all these types of data need to remain stable, since "electronic records can be authentically preserved even when they are transformed from one set of digital components to another, provided the replacement set preserves all the essential attributes of the record."[20] Indeed, one would expect the form and composition data to be somewhat different for each system (hardware and software environment) that preserves the potential for displaying the manifest record.

This analysis is deepened by considering its relation to Nelson Goodman's classic *Languages of Art*, the first edition of which appeared near the beginning of the digital era.[21] He observes that there are certain types of artworks, which he calls "allographic," for which

there is a theoretically decisive test for determining that an object has all the constitutive properties of the work in question without determining how or by whom the object was produced. … Such a test is provided by a suitable notational system. … For texts, scores and perhaps plans, the test is correctness of spelling in this notation; for buildings and performances, the test is compliance with what is correctly spelled.[22]

Goodman explains that the only notational systems that permit this are "digital," which enable one to tell unambiguously whether any given manifested element of the work accurately realizes the corresponding mark on the notated instructions for producing the work. For example, musical notation is digital in the sense that one can tell whether each event in a musical performance complies with the corresponding mark on the musical score. Allographic artworks have a property that might surprise an archivist: they cannot be forged. Any text that correctly "spells" an instance of *Jane Eyre* is a genuine instance, no matter who wrote it; any performance that accurately "complies with" the score of Beethoven's *Für Elise* is a genuine instance, no matter the source of the score or who plays it. The same is not true, say, of such non-allographic but multiple artworks such as a print. A print's analog nuances of

19   Duranti and Thibodeau, "The Concept of Record," p. 48.
20   Ibid., p. 19.
21   Nelson Goodman, *Languages of Art: An Approach to a Theory of Symbols* (Indianapolis, 1968); all subsequent references are to the 2d ed. (Indianapolis, 1976).
22   Ibid., p. 122.

line, colour, and texture cannot be expressed digitally, so the only way to tell that it is not a forgery (in other words, that the object was made by its putative artist) is by demonstrating that it was made from the artist's own plate, through a "reliable record of its provenance."[23]

Although many specifics of Goodman's view of art, and other aspects of his book, have been criticized, his observations about the power of digital-notation systems both resonate with, and problematize, InterPARES findings about the nature of digital records. By his definition, all digital displays, including manifest records, are allographic. Thus, all instances of a manifest record that comply with the instructions for producing it are genuine. For authentic preservation, then, one should attend to the diplomatic properties not of the manifest record per se (which, in any event, is ephemeral), but of the instructions and instruments that produce it, that is, the "form data" and "composition data." Yet these are the data that change from system to system. How can one be sure that the manifest record complies with the original form and composition data?

InterPARES 2 researchers grappled with this question in attempting to reconstruct *Obsessed again ...*, mentioned above. This composition, like many artworks, was created with software and hardware that was state-of-the-art at the time, but is now obsolete. The recording did not sufficiently specify the work, because it exhibited only one of its many possible, different manifestations (indeed, the recorded performance erroneously omitted some events specified in the instructions). The problem, then, was to rewrite the software so that modern hardware would emit the same sounds, and interact with the bassoon in the same way as the original hardware did. But solving this problem generally, so that the work could be realized on unknown future digital devices, required a description of the electronic behaviour that was not in a proprietary obsolete language. Accordingly, the translation was undertaken in two stages. In stage one, a researcher made a plain-language description of how the electronic components behave and interact, producing what I will call "pseudocode." In the second stage, a different researcher took the pseudocode and a recording of the original performance, and constructed new software, from scratch, that would control the new hardware appropriately.

The failure to produce a performance that the composer would authenticate stemmed from two problems that generalize readily to similar efforts to preserve digital records. One, as I mentioned above, was uncertainty about content: although researchers tried to choose sounds on modern equipment to match those on the recording, the composer did not accept them as such. The other problem was that the pseudocode turned out, in retrospect, to be inade-

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23 Nelson Goodman, "Authenticity," in *The Dictionary of Art*, ed. Jane Turner (New York, 1996), p. 834.

quate for describing some of the interactions, so some of the resulting performances added unacceptable events, or omitted essential ones. It appears that Duranti and Thibodeau's requirement that the "essential attributes" of a manifest record be preserved is easier said than done.

Another aspect of Goodman's analysis, as at least one commentator has noted (e.g., Ralls 1972), is that it anticipates new sorts of allographic artworks that resemble analog artworks, but are not forgeable.[24] These now exist: every time one views any digital display of art, one experiences such a work. If such a visual artwork complies with the instructions for displaying it, it is genuine; it cannot be forged. If one recreates the display, pixel by pixel, one has genuinely instanced the work, because it exactly complies with the original author's instructions for making it, even if those instructions are not referred to. I call these "new sorts of artworks" because there is a price for achieving unforgeability through digital notation: the loss of the infinite gradation and unbroken continuum of qualities that characterize analog visual artwork. Unforgeability requires a digital notation that can be accurately realized; but a digital-notation system limits the palette and disallows the possibility of certain features that are possible in the analog arts; so unforgeability constrains expression. Digital-visual artworks, no matter how high their resolution, cannot have all the qualities of analog-visual artworks.

Goodman's theory of genuineness does not address all the essential aspects of an artwork's authenticity and meaning. These have been the focus of other, and especially more recent, philosophies of aesthetics. Paradoxically, these aspects are inconsistent with the diplomatic view of artworks, but they accord in interesting respects with the InterPARES view of electronic records.

The diplomatic view of an artwork as a publication implies that knowledge of its context is not necessary to understand its message. This is a not uncommon view about art – that its meaning (and artistic value) derive solely from the properties that it manifests immediately and directly to its audience. Gregory Currie dubs this attitude "aesthetic empiricism." [25] The popular novelist Tom Wolfe appeals to it to support his claim that certain works of conceptual art, whose meanings depend on a viewer's knowledge of historical context and art theory, cannot be understood as art in the same ways as can earlier artworks.[26]

Although Wolfe's view reflects common beliefs about the universality of the greatest works of art, there are good reasons to nuance it. Visually identical canvases can have very different expressive, formal, and representational

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24 Anthony Ralls, "The Uniqueness and Reproducibility of a Work of Art: A Critique of Goodman's Theory," *Philosophical Quarterly*, vol. 22, no. 86 (January 1972), pp. 1–18.

25 Gregory Currie, *An Ontology of Art* (New York, 1989).

26 Tom Wolfe, *The Painted Word* (New York, 1976).

properties to the extent that they arise from dif ferent artists, actions, and intents.[27] Moreover, to appreciate a work, one must know to what category of art it belongs.[28] Some even argue that the meaning of art should be sought not in objective products, but in the product-producing performances of artists within a complex of cultural-technological contexts.[29] David Davies reworks all these claims into a "strong counter -empiricist argument": that "all ascriptions of artistic properties are in principle defeasible in light of supra-categoreal facts about a work's provenance."[30] One way to interpret this assertion is: anything that one might understand or appreciate about a work of art could be contradicted by knowledge about how the work was made. For example, my assessment of the craftsmanship of a digital musical composition is af fected by my knowledge of whether the sounds were sampled, or created laboriously from scratch, or simply part of a public-domain sound library . Similarly, my sense of what a digital-visual artist has achieved and expressed with a particular display, is affected by my knowledge of the technological tools she had to work with; some things that are easy now were very hard twenty-years ago. Certainly, such knowledge involves at least the reliable record of provenance required to determine the genuineness of non-allographic artworks, a record that could be incorporated into the identity and integrity metadata that InterPARES suggests are necessary for the preservation of authentic documents.

Similar procedures can accommodate aestheticians' views that category information is essential for appreciating art. Since all digital objects (once read from the medium to which they are af fixed) are simply strings of binary digits, one cannot, in principle, distinguish a spreadsheet, interpreted and displayed as a graphics file, from a work of digital art, without some indication of what it is, external to the bits that constitute the content, form, and composition data. Such an indication can come from metadata schemes that associate information about the category of document that the data represent. InterPARES-metadata research, such as MADRAS, identifies possible ways of doing so.[31]

But such knowledge goes beyond provenance and category , as those are

27   Arthur C. Danto, *The Transfiguration of the Commonplace* (Cambridge, 1981).

28   Kendall L. Walton, "Categories of Art," *Philosophical Review*, vol. 79, no. 3 (July 1970), pp. 334–67.

29   Currie, *Ontology*. See also Denis Dutton, "Artistic Crimes: The Problem of For gery in the Arts," *British Journal of Aesthetics*, vol. 19, no. 4 (1979), pp. 304–14.

30   David Davies, *Art as Performance* (Oxford, 2004), p. 39.

31   MADRAS is the InterP ARES2 Metadata and Archival Description Registry and Analysis System. It is intended as a data-collection and analysis tool to support comparative studies of schemas for describing records, and to assist record creators and preservers in the evaluation and selection of schemas. See http://www.gseis.ucla.edu/us-interpares/madras/ (accessed 19 January 2008).

usually understood, to include what Walter Benjamin called the "aura" of a work: "the essence of all that is transmissible from its beginning, ranging from its substantive duration to its testimony to the history which it has experienced."[32] Art, in this view, memorializes culture and history, and to disregard an artwork's context is to reduce it to entertainment. So, although artworks may be merely "publications" in some sense, their meaning does not reside solely in their manifest properties – their content – but also depends upon their history of existence, their relation to the technology and techniques by which they were made, and the systems of signification in their creators' cultures – in short, upon their context. In this respect they are like records.[33]

Alluding to categories of archival description, InterPARES recognizes some of these contexts of signification:

Context shifts the analysis away from the record itself to the broader structural, procedural, and documentary framework in which the record is created and managed. The identified elements of context correspond to a hierarchy of frameworks ranging from the general to the specific. They include the record's *juridical-administrative context*, its *provenancial context*, its *procedural context*, its *documentary context*, and its *technological context*. Knowledge of these elements is critical to an understanding of the business processes in the course of which electronic records are created, maintained, and used; the types of records generated from these processes; and the connection between those processes and the creator's broader functions and mandate.[34]

But the contexts of art are much broader. For instance:

The total musico-historical context of a composer P at a time t can be said to include at least the following: (a) the whole of cultural, social, and political history prior to t; (b) the whole of musical development up to t; (c) musical styles prevalent at t; (d) dominant musical influences at t; (e) musical activities of P's contemporaries at t; (f) P's apparent style at t; (g) P's musical repertoire at t; (h) P's œuvre at t; (i) musical influences operating on P at t.[35]

Thus located in a vast network of other art – embedded in, referring to,

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32 Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction" (1935), trans. Harry Zohn in *Illuminations* (London, 1992), pp. 211–44.

33 My argument here glosses over some interesting differences. In business and government, records' context is constructed procedurally as the author creates them sequentially in the course of well-defined activities. Often a simple sequence number or classification code suffices to contextualize such a record. However, works of art differ from those kinds of records in that their author (usually) does not make them in a predefined sequence, where the second work acquires meaning from the first and the third from the second. Their context arises retrospectively, not prospectively.

34 MacNeil et al., "Authenticity Task Force Report," p. 27.

35 Jerrold Levinson, "What a Musical Work Is," *Journal of Philosophy*, vol. 77, no. 1 (January 1980), pp. 10–11.

influenced by, and critiquing the beliefs and values of its time – an artwork means (and matters) more than a record of a business transaction. If preserving an artwork should preserve its meaning, InterPARES has not come to grips with the pragmatics of describing these contexts. For instance, the guidelines it has published for creating preservable records do not touch upon questions of artistic language or relationships to other artworks.[36] I see this as one of the major challenges in applying its theoretical principles.

Therein some would see the final paradox. The allographic nature of digital-art documents makes it easy to lose or ignore the contexts in which they were meaningfully created, and which serve their memorializing function. Their texts, images, and sounds become repurposable, devoid of history, fit only for consumption:

As we move from the modern to the postmodern condition, the real world of things is increasingly difficult to tell apart from copies of things, or simulations, created by the influences of advertising, television, digitized computer graphics, the Internet, and other technological tools of the information age. … Even the most private spaces of the body and the unconscious are exploited with accelerating rhythms of style, fashion, and popular trends in music, teen culture, and suburban living. Mediated by the new electronic media, the postmodern condition of everyday life increasingly is driven by sign exchange for its own sake.[37]

Ironically, the capitalist systems that diplomatics has come to support facilitate the commoditization of art, its disconnection from its context and creators, and the erasure of its cultural testimony. Death to authenticity; long live aesthetic empiricism!

Against such a pessimistic view of the digital era, however, the research of InterPARES offers some hope. All the artists it studied understood "authenticity" to entail personal responsibility for their works. To the extent that artists can be persuaded to operationalize this belief by marking their digital documents with metadata of identity (including context) and integrity, and by specifying the essences of their works in technologically neutral, persistent languages, we may be able to continue to appreciate their art as a repository of our culture.

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36 InterPARES 2, *Making and Maintaining Digital Materials: Guidelines for Individuals* (Vancouver, 2007), http://www.interpares.org/display_file.cfm?doc=ip2(pub)creator_guide lines_booklet.pdf (accessed 22 October 2007).
37 Walter Kalaidjian, *Understanding Poetry* (Boston and New York, 2005), pp. 262–64.