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Rother, Lynn; Koss, Max; Mariani, Fabio

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The Future of Provenance: Digital Cataloguing as Reparative Practice

BY LYNN ROTHER
LICHTENBERG-PROFESSOR FOR PROVENANCE STUDIES, DIRECTOR OF THE
PROVENANCE LAB, LEUPHANA UNIVERSITY LÜNEBURG; ADJUNCT CURATOR
FOR PROVENANCE, THE MUSEUM OF MODERN ART, NEW YORK

MAX KOSS
RESEARCH ASSOCIATE, PROVENANCE LAB, LEUPHANA UNIVERSITY LÜNEBURG

FABIO MARIANI
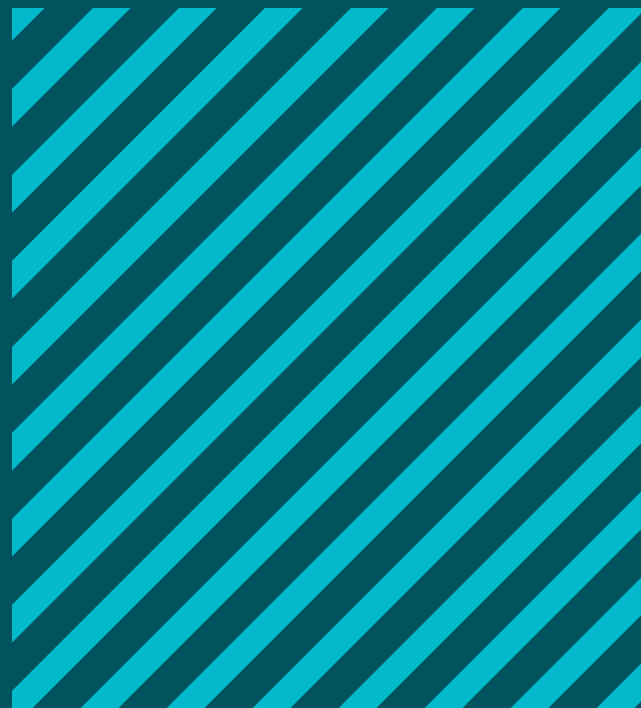RESEARCH ASSOCIATE, PROVENANCE LAB, LEUPHANA UNIVERSITY LÜNEBURG

Center for the Future
of Museums

ABOUT THIS PAPER

An academic foresight paper exploring a future in which provenance records are digitally available, linked across constituents, and shaped by various perspectives.

ABOUT THE NEXT HORIZON PROJECT

This paper is one of a series published by the American Alliance of Museums exploring the future of voluntary repatriation, restitution, and reparations in museums. For this collection, AAM's Center for the Future of Museums invited a diverse group of authors from the museum sector, academia, and descendant communities to share their visions of preferable futures in opinion pieces, academic research, fictional stories, or hybrids between these formats. For a full overview of the project, and a selected timeline of museums' evolving ethics regarding collections and community relationships, see the AAM report *The First Horizon: Understanding the State of Voluntary Repatriation, Restitution, and Reparations Today*.

MUSEUM CATALOGUING AND KNOWLEDGE EQUITY

As research and public science institutions, museums manage existing knowledge and create new knowledge about their collections. They also share this cultural heritage information through permanent displays and temporary exhibitions, education and outreach programs, publications, and their websites. Collection catalogues underlie these activities and shape them in significant yet critically neglected ways. In the digital form of collection management systems, catalogues are key to understanding how museums produce, organize, and manage knowledge. As recent decolonial critiques have made clear, museums are sites of epistemic violence exactly because of how they create, manage, and share their collection information (Hicks 2020). In this paper, we build on this insight to describe current practices in provenance recording in museums and how they perpetuate knowledge inequity. The limited digital accessibility and availability of provenances lead us, then, to propose a digital provenance system that opens up the creation and care of provenance in museums to the outside world, inviting a range of perspectives that in turn may lead to a larger conversation and eventually to a form of shared, reparative practice.

How museums deal with knowledge must, then, lie at the heart of how museums adapt and respond to changing demands. Rightfully, there are continued requests for restitution of looted and illegitimately acquired works. These go hand in hand with calls for greater accountability and transparency regarding the origins of collections, which are ever-present as museums try to recast themselves as more inclusive and self-aware—indeed decolonial—institutions. Such rhetoric aside, the question remains: what steps are museums undertaking to change their institutional set-up—away from complicity in legacies of violence toward embrace of reparative practice?

Given that unanswered questions about the origins of their collections abound, museums ought to place the cataloguing of provenance at the center of strategic thinking about their future as decolonial institutions. Yet, knowledge production and management in museums remain insufficiently addressed in a transformative—that is, strategic and structural—way. This is especially true for provenance cataloguing. The lack of easily accessible and searchable provenance data continues to negatively affect people seeking justice. The predominant way of recording provenances perpetuates the gate-keeping function of museums in terms of knowledge production. To become inclusive knowledge platforms fostering collaborative, dynamic, and multiple ways of knowing, museums need to embark on reparative cataloguing.

To address this, provenance cataloguing must be readied for its digital future. Indeed, the arrival of digital provenance in the form of provenance linked open data offers the opportunity to bring together existing, and hence often Western-centric,

knowledge with a technical infrastructure predicated on decentralized knowledge production. Through collaboration, digital provenance can be a tool of accountability and successfully bring together different perspectives and forms of knowledge—the reparative future practice that this essay hopes to help foster.

THE PROVENANCE PARADIGM

The status quo of provenance practice reflects major developments that have occurred since the watershed publication of the **Washington Conference Principles on Nazi-Looted Art** in 1998. These principles have established what we may call a provenance paradigm. Forty-four governments and non-governmental organizations agreed to proactively engage in provenance research to find just and fair solutions for the restitution of Nazi-looted art. Since then, provenance research has continually expanded and has become a professional field of specialized historical research.

The provenances researched and written in the wake of the Washington Principles hold up to scientific standards and are increasingly detailed, not least due to the ever-growing (digital) availability of archives. While the Washington Principles were concerned with Nazi-looted art, provenance research has expanded its purview over the past twenty-five years to include other contexts of injustice, such as Soviet occupation, the former GDR, and colonial-era expansion and rule. In the recent past, provenance's significance for the identification of ancient artifacts with a history of being illegally exported or trafficked has come into sharp relief, with several high-profile cases coming to the public's attention, such as at the **Metropolitan Museum of Art** in New York or London's **British Museum**.

In line with the Washington Principles' call for greater access to provenance, a growing number of provenances are published online on museum websites and through data dumps or application programming interfaces (APIs). However, in current versions of collection management databases, this data is provided exclusively as unstructured text in free text fields. In this form, individual provenance elements, such as the names of individuals, time indicators, or geographic locations, cannot be processed by machines and, therefore, cannot be searched with complex queries. For example, it is not possible to automatically identify works with a provenance gap between 1933 and 1945 through a corresponding data query, neither within a collection nor across museums.

Additionally, because the data is not structured, i.e., machine-readable, it cannot be linked to that of other museums, archives, or databases. If this were possible, synergies would arise benefiting both documentation and research, as the same people, places, and events are usually found in the provenances of more than a single museum. Where

hundreds of data records are now recorded and maintained in just as many institutions for one and the same previous owner, a linked data structure would make it possible to link them to one and the same authoritative source of information and, for example, to enter biographical details only there.

The data silos in which the information lives also represent an obstacle to institutional transparency. This applies to restitution efforts and to the use of the information for academic or research purposes. To this day, it is impossible for the descendants of those persecuted by National Socialism, or whose heritage was forcefully taken in colonial contexts, to carry out digital provenance inquiries across institutions.

Even more vexing from a decolonial perspective is the continued centralized authority of museums in naming and applying nomenclatures to what is in their collections. Similarly, while provenance has made great advances over the past two and a half decades, especially as practiced by museums, it is also true that its origins lie in the Western (European) art market. This legacy is still present today in the way provenances are recorded as more or less detailed lists, always already potential instruments of flattening—willfully or not—complex realities (Raux 2012). The underrepresentation of women in provenances, and their widespread misrepresentation under their husbands' names when they do appear, is just one case in point. Another is the continued use of Western notions of custody or ownership in provenance, especially when they are applied to cultures and communities with different conceptions of how humans relate to their environment. Indeed, the concept of "object" is problematic. The term hides the ontological diversity that emerges from the fact that many cultures imbue their material creations with various forms of agency, to the point of granting subject status to them.

Provenance, as undertaken, for example, by auction houses, dealers, galleries, and museums, means many things to its many different practitioners. We believe that, as crucial nodes in the cultural heritage ecosystem and as institutions that continually enjoy high levels of public trust–recent challenges notwithstanding–museums are primed to instigate, if not altogether effectuate, system-wide change.

THE DIGITAL PROVENANCE PARADIGM

Recognizing that the creation of information relies on many contributors, it becomes clear that knowledge generated and maintained by museums must become digitally networked and decentralized (Rother, Koss, and Mariani 2022). The technological infrastructure that can address the decolonial imperative of collaborative and digital knowledge is the semantic web, which is built on structured data. The idea of the semantic web is to make online information machine-readable. Information in the

semantic web is ruled by domain-specific data models–structured frameworks that define the relationships and attributes of data. Furthermore, it is individually and permanently identified on the web using a uniform resource identifier (URI) and can be automatically utilized by machines. This allows, in particular, for linking the information to other data that has been made available on the semantic web. The **CIDOC-CRM data model** developed by the ICOM Committee for Documentation (CIDOC), which was designed specifically for cultural data and is being actively developed further, can be used for the necessary semantic description of the data. There are also application profiles based on this model, such as **Linked Art**.

For structured data to be compatible across institutions to begin with, museums must adhere to a set of shared principles that make the data findable, accessible, interoperable, and reusable—a set of principles known as the **FAIR principles**, established in 2016. These principles alone, however, do not guarantee an inclusive approach that enables multiple ways of knowing. Accessibility of data does not necessarily imply that the data is also open. The **open data definition** states that "open data and content can be freely used, modified, and shared by anyone for any purpose." The format that combines the FAIR principles with the open principle is linked open data (LOD).

If these requirements are met, provenance data can be linked to other existing LOD resources, such as **Wikidata**, open to be edited by anyone, as well as the **Getty Vocabularies**, a range of thesauri provided by the Getty Research Institute in Los Angeles. The linking to existing knowledge means that institutions or researchers with limited means but keen on contributing to research can use their resources more efficiently, applying them specifically to the research and new knowledge they have to offer.

Besides the technical data standards that need to be considered in a strategic, decolonial rethinking of digital museum cataloguing, ethical data standards also need to be taken into account. Here, cultural heritage data providers, be they institutions or individual researchers, should consider and adhere to the **CARE Principles for Indigenous Data Governance**. The four principles are collective benefit, authority to control, responsibility, and ethics. They were designed to complement the open principle by protecting the interests of Indigenous communities and their right to their data. As such, they need to be part of any decolonial approach to museum cataloguing, including provenance.

The creation of provenance linked open data (PLOD) as a collaborative knowledge infrastructure on the basis of FAIR and CARE principles faces two primary challenges that museums and the cultural heritage community at large must urgently engage with if provenance cataloguing is to become a reparative practice.

First, many provenances have already been recorded and published online. Recreating such information as PLOD from scratch would require the use of resources that may be better invested in actual research. It would thus be more efficient for museums to transform their existing provenance data into PLOD automatically. This is something we have explored in some detail, especially how artificial intelligence (AI) can be of help in the process (Rother, Mariani, and Koss 2023; Mariani, Rother, and Koss 2023). As provenance is complex historical information that has been compiled and recorded by experts, its computer-aided transformation must be based on a so-called human-in-the-loop model. In such a model, the expert monitors the individual steps of the machine transformation to ensure that no falsification of information occurs.

The complexity of provenance and the incompleteness of archival materials from which it is sourced raise the question of how to address the issue of quality when transforming existing provenance digitally. This is all the more true for US museums, who were the first to engage in provenance research on a significant scale, and whose provenances may thus be already twenty years old without ever having been updated since. While there is no easy solution to what essentially amounts to a research—and, hence, resource—problem of having to be constantly up to date with one's data, we can mention three ideas here of how to begin to address the digital provenance quality issue. A first is the use of metadata to provide information about the sources used and the authorship of provenance information (or the scientific vetting thereof). Another step that can be taken to improve the scientific quality of digital provenance information is to timestamp the creation and each change of a digital provenance. (And, in the meantime, museums can improve their provenances by beginning to timestamp the provenance information they already make available as unstructured data.) Lastly, through the process of linking information, knowledge gaps in provenance can be addressed through connection to other data repositories. This also means that a networked provenance infrastructure reduces the need for complete consistency in provenance recording. Some missing information can, in fact, be automatically retrieved. Linking can thus also point to the provenances for which further archival research can be most useful.

The second fundamental challenge to digital provenance cataloguing as a reparative practice is the ongoing differences in how provenance is recorded. Despite decades-long efforts to streamline the writing of provenance through guidelines, such as the format put forth by the 2001 AAM Guide to Provenance Research, provenances remain heterogeneous and are not ready for easy digitization (Yeide, Akinsha, and Walsh 2001). For a PLOD infrastructure to be possible, new recording standards for provenance in the digital realm are required. These must reconcile ethical considerations of knowledge equity, processes of documenting complex historical findings, and the technological realities of the twenty-first century.

The process of establishing new provenance data standards needs to address three aspects. First, it requires a well-defined vocabulary. The cultural heritage community must create an accessible and unambiguous terminology anticipating the requirements of the different constituents and disciplines to be incorporated into existing vocabularies, such as those made available by the Getty mentioned earlier. Second, it requires clear writing guidelines. The field must ensure writing consistency across institutions and disciplines, anticipating the needs of both human readers and machines, by building on existing textual standards (such as the AAM format) while also creating a shared understanding of complex concepts (such as how to record uncertain, contradictory, or incomplete provenance statements). Thirdly, a conceptual framework is needed. Experts and knowledge contributors need to agree on the structure and semantic logic of provenance records by testing and potentially refining existing ontologies and application profiles (such as CIDOC CRM and Linked Art) on a diverse and large set of provenance records from various disciplines and institutions.

To close, it is worth recalling that the growing importance accorded to provenance over the last two decades is a recent phenomenon, not least for museums. Many of them, especially in Europe, date to the nineteenth century and its complex history of nationalist fervors and colonial endeavors. Moreover, they are shaped by Western legacies of Enlightenment ideals of scientific collecting and universalist ideologies of capturing and ordering knowledge. At the same time, modern provenance practice also has its historic roots in the eighteenth century, when it emerged as a marketing tool of the Parisian art market, where it served to highlight as well as omit information to bolster the perceived value of artworks, specifically paintings.

The epistemic violence exerted by museums, then, is a more fundamental issue that digital provenance cataloguing or even the semantic web cannot solve alone. However, given its importance to questions of restitution and knowledge equity in the cultural heritage domain, provenance cataloguing is the most pertinent place to begin reforming the museum from the inside out with the help of digital technology.

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ABOUT THE AUTHORS

Lynn Rother is the Lichtenberg-Professor for Provenance Studies at Leuphana University and serves as Adjunct Curator for Provenance at the Museum of Modern Art (MoMA) in New York. Prior to this appointment, she held research positions at MoMA (2015–19) and the Berlin State Museums (2008–14) working on twentieth-century provenance and digital initiatives. A former Fellow of The Getty Research Institute in Los Angeles (2014–15) and of the German Historical Institute in Moscow (2011), she has a master's degree in art history, economics, and law from the University of Leipzig (2008) and a PhD in art history from the Technical University of Berlin, advised by Bénédicte Savoy (2015).

Rother currently serves on the Board of Trustees of the ZADIK (Zentralarchiv für deutsche und internationale Kunstmarktforschung), the Advisory Board of NFDI4Objects (Research Data Infrastructure for the Material Remains of Human History), the Getty Provenance Index Advisory Committee, the Editorial Board of Linked Art, and the Expert Witness Selection Committee of CAfA (Court of Arbitration for Art), among others. She has published on the relationship of provenance research and art history, the potentials of provenance research in political and institutional contexts, the potentials of linked open data for museums and provenance research, and the methodologies of provenance research focusing on case studies, including a comprehensive study on art as collateral during the Nazi-era.

Max Koss is a Research Associate at Leuphana University Lüneburg, joining in March 2021. Prior to joining Leuphana University, Max was a doctoral fellow of the Kunsthistorisches Institut Florenz - Max-Planck-Institut and the Berlin State Museums/Prussian Cultural Heritage Foundation (2016-2019).

Koss received a PhD from the University of Chicago in 2019 with a dissertation on the German art nouveau periodical Pan ("The Art of the Periodical: Pan, Print Culture and the Birth of Modern Design in Germany, 1890-1900"). He also holds an MA degree from the University of Chicago, an MA degree from the Courtauld Institute of Art, and a BSc in Economic History from the London School of Economics and Political Science (LSE).

He has spent time in various internship roles at the Smart Museum of Art, the Art Institute of Chicago, the Musée d'Art Moderne de Paris, the National Gallery of Art in Washington, DC, and the Kunstbibliothek of the Berlin State Museums. His research was supported by the German Academic Exchange Service, the German Schiller Foundation, the Mellon Foundation, the Samuel H. Kress Foundation, and the French Heritage Society.

Recent publications, together with Lynn Rother and Fabio Mariani, include, *Taking Care of History: Toward a Politics of Provenance Linked Open Data in Museums* (Art Institute of Chicago, 2022); *Hidden Value: Provenance as a Source for Economic and Social History* (Economic History Yearbook, 2023), and *Interpreting Strings, Weaving Threads: Structuring Provenance Data with AI* (Wallstein, 2024).

Fabio Mariani is Digital Humanities Research Associate at Leuphana University Lüneburg since August 2020. He is a PhD candidate on "Subjective, Uncertain, and Vague Information in Digital Art History" at Leuphana University. After a bachelor's degree in history, he obtained a master's degree in digital humanities at the University of Bologna in 2020.

During his studies, Mariani collaborated on several research projects involving semantic web technologies at the Digital Humanities Advanced Research Centre (DH.arc) and OpenCitations. He worked as a programmer and ontology designer at the Institute of Cognitive Science and Technology (ISTC, 2019-2020).

Recent publications, together with Lynn Rother and Max Koss, include, *Taking Care of History: Toward a Politics of Provenance Linked Open Data in Museums* (Art Institute of Chicago, 2022); *Hidden Value: Provenance as a Source for Economic and Social History* (Economic History Yearbook, 2023), and *Interpreting Strings, Weaving Threads: Structuring Provenance Data with AI* (Wallstein, 2024). Fabio has also published *Introducing VISU: Vagueness, Incompleteness, Subjectivity, and Uncertainty in Art Provenance Data* (Computational Methods in the Humanities, 2022).

Center for the Future of Museums

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