

FROM PALACE TO INTERNET: THE VIRTUAL RESEARCH ENVIRONMENT OF THE BERLIN KUNSTKAMMER

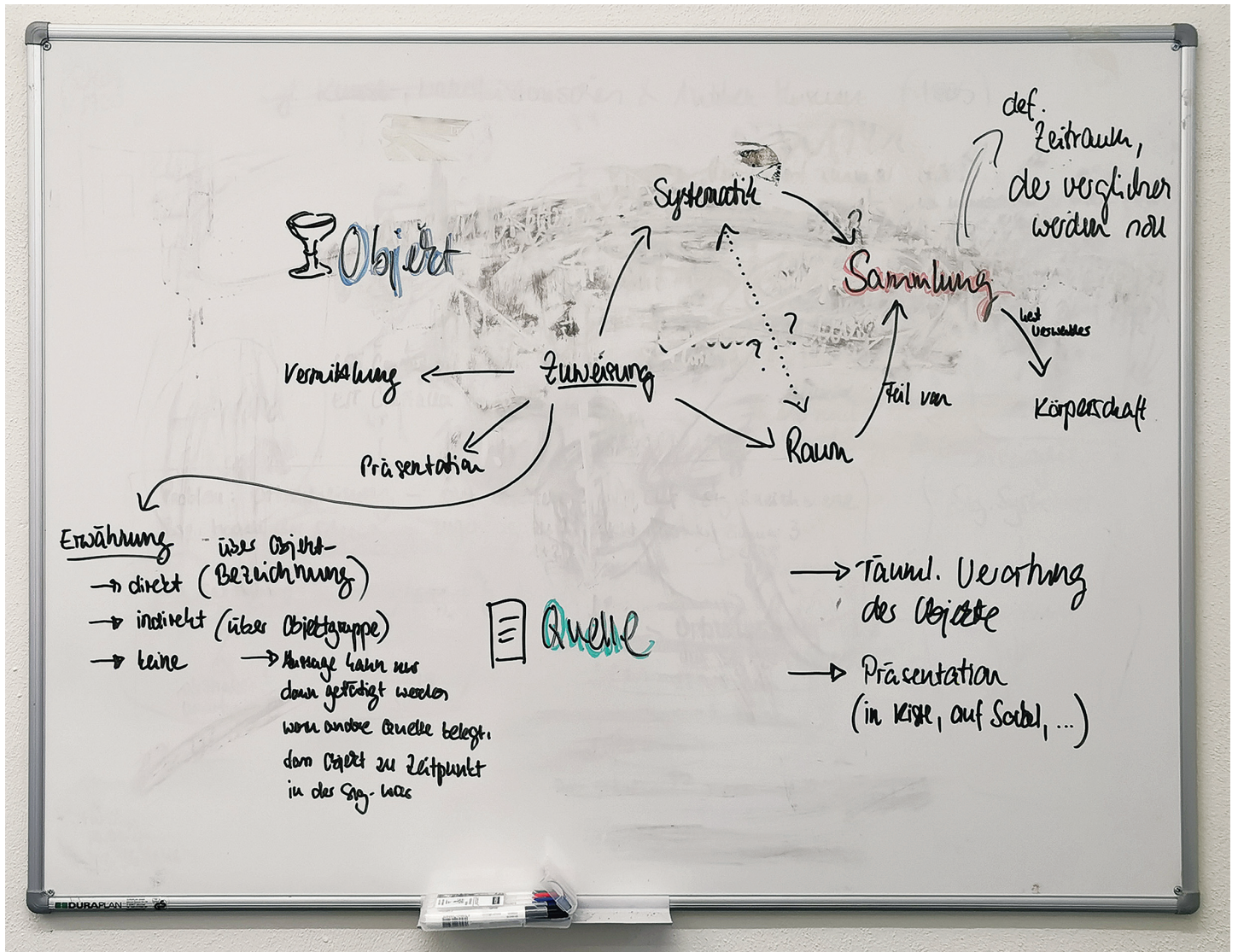
berlinerkunstkammer.de

The virtual research environment transforms the Berlin Kunstammer into a digital knowledge graph that connects objects, actors, places, and sources.¹ It brings together the Kunstammer's former holdings, not in a physical collection space, but in a virtual environment² where they can be viewed, explored, and studied online. It was developed as part of the research project that gave rise to the present book.

As a digital representation of the collection, the research environment is the next chapter in the media history of the 400-year-old collection. In 1930, Otto Reichl attempted to reconstruct the Kunstammer on the basis of the existing collection rooms [●1930]. The Kunstammer that was recreated at the 1981 Prussia exhibition drew on Friedrich Nicolai's description of the collection [■Nautilus]. By contrast, the virtual Berlin Kunstammer developed between 2020 and 2022 uses a large number of sources, which in combination provide a multi-perspective view of the collection and its development. Numerous Kunstammer objects have survived in the collections of the Staatliche Museen zu Berlin or have been incorporated into the holdings of the Museum für Naturkunde Berlin; others are held by the Humboldt-Universität zu Berlin. However, many of the objects live on only in historical sources, which is why the research environment focuses on their text-based reconstruction. Its goal is to enable users to investigate the objects digitally and by time period. In addition to providing an overview³ of the most important sources related to the Brandenburg-Prussian Kunstammer and its predecessor and successor institutions, the research environment presents selected sources with transcriptions (working drafts),⁴ digital copies, and in-depth object information.

The Berlin Kunstammer as a Knowledge Graph

The uniqueness of the virtual Berlin Kunstammer lies in the way it describes, integrates, and maps knowledge. The environment is based on Semantic Web technologies,⁵ which add a semantic dimension to the functionalities of the World Wide Web. The goal is not only to structure and connect knowledge, but also to improve its usability and shareability. The basic framework of the virtual Berlin Kunstammer is the research and documentation environment WissKI (Wissenschaftliche Kommunikationsinfrastruktur, or Scientific Communication Infrastructure),⁶ which is oriented towards the web-based cataloguing, research, and publication of cultural heritage. The topology of the virtual Berlin Kunstammer is defined by an underlying data model that translates the subject of study and the research questions into a knowledge graph. In our project, the paths and changing meanings of the objects – as well as the associated effects on the constellation and dynamics of the holdings – have been central to the study of the historical collection. At the same time, we give consideration to the historicity of sources, the associated ambiguities, and the incompleteness of information.



As a concept, the knowledge graph seeks to map subject area information that is formally described using “ontologies” – a term that in information science refers to a set of concepts and the relations between them.⁷ The CIDOC Conceptual Reference Model has established itself as an ontology and an ISO standard in the field of cultural heritage.⁸ This ontology, which the project uses, consists of roughly ninety classes (e.g. “physical object”, “actor”, “place”, “time span”) and 150 properties (e.g. “has title _____”, “took place at _____”, “was created by _____”), whose respective meanings are precisely defined. The ontology is constantly being further developed by humanities scholars and information scientists and serves as a lingua franca for transdisciplinary research. Through the formation of class-property-class chains, sentences are constructed that can be processed by humans and machines alike. If all the sentences about an observed subject area are set into relation within the context of specific questions, there emerges a graph-based data model or knowledge graph that is tailored to the application area. Furthermore, as an event-centric ontology, the CIDOC CRM makes it possible to use a variety of events (e.g. birth, production, attribution) to represent states and their transformation. In turn, these events can be linked to actors, times,

1 | Whiteboard with initial ideas for the data model for the research environment (discarded).

Das Fenster zur Natur und Kunst
Forschungsumgebung zur Brandenburgisch-Preußischen Kunstammer

Objekte / Quellen

Objekte Suchen

Ansicht Bearbeiten Löschen Graph Triples Anzeige verwalten Revisionen

Silbermann 1741, fol. 109r

Angaben zum physischen Exemplar

Silbermann 1741, fol. 109r
Transkription

In einem Kasten printz von Oranien welcher im seiner Kindheit * 2ten Jahr seines alters gestorben, Er war der erste printz vom vorigen König. Es ist dieses Bildnis nackt von wachs ungemein sauber possiert, und sitzt auf einem sammeten Küßen.



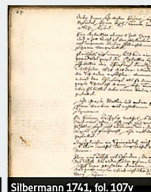
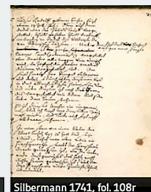

Von dem berühmten Bildhauer Erancis Genoa einem flamenter, ist von weißem Marmor eine kleine Statua Ein Kind vorstellend wie es an einem Bogen schneidet [: das Bogen schneiderlein genant :] zu sehen, der jezige Hoffe Mahler Mr Le pain hat dem König nebst noch einer andern [...] 500 pistahlen davor offerieret wären 2500 [...] und hat noch dazu ein anders an diese platz wollen machen laßen.

In einer aparten Küste lag ein Fuchsbalg mit zweyen schwänzen, wie er wurde mir zu visitiren gegeben um zu sehen ob keiner angenähert ist.

Von einem gold ApothekersJungen aus Berlin zeigte Er mir einex gold welches Er aus etlichen sächsischen groschen elaborirret. ingleichem einen Hufnagel weihen an welchem die eine Heltte pur gold ist, Es soll dieser Junge von einem alten Man den Er weder zuvor noch hernach nicht

Bearbeitung der Transkription
Thielen, Annika


ist Teilinhalt von: Silbermann 1741


Objektzuweisung

<p>Lebensgroße Wachsbossierung Kronprinz Friedrich Ludwigs, zweijährig</p>	<p>Bezeichnungszuweisung In einem Kasten printz von Oranien welcher [...] 2ten Jahr seines alters gestorben, Er war der erste printz vom vorigen König. Es ist dieses Bildnis nackt von wachs ungemein sauber possiert, und sitzt auf einem sammeten Küßen.</p> <p>Materialzuweisung zugewiesenes Material Wachs</p>	<p>Präsentationszuweisung Art der Präsentation in einem Kasten auf Samtküssen Stelle im Text In einem Kasten [...] und sitzt auf einem sammeten Küßen.</p> <p>Personenzuweisung zugewiesene Person <u>Friedrich Ludwig, Kronprinz in Preußen [1707-1708]</u> Art der Zuweisung der Person dargestellte Person</p>
<p>Bogenschnitzender Amor</p>	<p>Bezeichnungszuweisung das Bogen schneiderlein</p> <p>Materialzuweisung zugewiesenes Material Marmor</p> <p>Stelle im Text (Wortlaut) [...] ist von weißem Marmor [...]</p> <p>Größenzuweisung (Maße, Gewicht, Wert) 500 Pistolen 2500 Pistolen</p>	<p>Vermittlungszuweisung Art der Vermittlung Anekdote Stelle im Text (Wortlaut) [...] der jezige Hoffe Mahler: Mr Le pain hat dem König nebst noch einer andern [...] 500 pistahlen davor offerieret wären 2500 [...] und hat noch dazu ein anders an diese platz wollen machen laßen.</p> <p>Personenzuweisung zugewiesene Person <u>Duquesnoy, Francois [1597-1643]</u> Art der Zuweisung der Person Künstler</p>
<p>Fuchsbalg mit zwei Schwänzen</p>	<p>Bezeichnungszuweisung ein Fuchsbalg mit zweyen schwänzen</p> <p>Materialzuweisung</p>	<p>Präsentationszuweisung Art der Präsentation in einer Kiste</p>


Erwähnte Objekte




Lebensgroße Wachsbossierung
Kronprinz Friedrich Ludwigs,
zweijährig



Bogenschnitzender Amor



Hufnagel, teilweise aus Gold



Fuchsbalg mit zwei Schwänzen

WissKI URI
<http://kunstammer.helmholtzzentrum.de/id/5e441ca021e8e>

2 | View of a source entry in the research environment with a digital copy, transcription, and the objects mentioned.



Bogenschnitzender Amor, [540]

Objektart
 Statue
 Skulptur
 aktuelle Inv.Nr.
 540
 Objekt-Id
 Bogenschnitzender Amor
 Objektklassifikation
 Artificialia
 Materialklassifikation
 Minerale und Gesteine
 Herkunftsort
 Rom

erwähnt in Quelle
 zugewiesenes Motiv
 zugewiesener Raum
 verwaltende Institution

Bildrechte
 Anders, Jörg P., Skulpturensammlung und Museum für Byzantinische Kunst der Staatlichen Museen zu Berlin - Preußischer Kulturbesitz, CC BY-NC-SA

Objektttributierung

<p>1741</p>	<p>Silbermann 1741, fol. 109r Bezeichnung/Beschreibung das Bogen schneiderlein zugewiesene Größe 500 Pistolen, 2500 Pistolen zugewiesenes Material Marmor</p>	<p>Personenbezug Duquesnoy, François, Künstler Vermittlung Anekdote, [...] der jezige Hoffe Mahler Mr. Le pain hat dem König nebst noch einer anderr [...] 500 pistahlen davor offerieret wären 2500 [...] und hat noch dazu ein anders an diese platz wollen machen laßen.</p>
<p>1742</p>	<p>Anonymus B, fol. 1v Bezeichnung/Beschreibung Ein künstl. aus Marmel gehauener Cupido. zugewiesene Größe Wert: 1000 Pistolen zugewiesenes Material Marmor</p>	<p>Personenbezug Duquesnoy, François, Künstler Genua, Franciscus, Künstler zugewiesener Standort Erste Cammer (Sammelband 1742-1752) Standort (übergeordnet) Schloss_3_OG Vermittlung Erläuterung zum Objekt, Die größte Kunst besteht um den Mund herum. Anekdote, Dem hochseel. König sind 1000 Pistolen davor gebothen worden, hat es abent weg geben wollen.</p>
<p>1769</p>	<p>Nicolai 1786, S. 794 Bezeichnung/Beschreibung Der Bogenschnitzende Cupido eine ganz vortreffliche Statue Motivzuweisung Amor zugewiesenes Material Marmor</p>	<p>Personenbezug Duquesnoy, François, Künstler Mangiot, Otto, Künstler Provenienz [...] Beschreibung des ehemaligen Lustgartens in Berlin, wo diese Statue sonst stand [...] Vermittlung Anekdote, Die gemeine Meynung ist, daß diese Statue von Fiamingo sey. Elsholz in seiner 1657 geschriebenen, mit Zeichnungen</p>

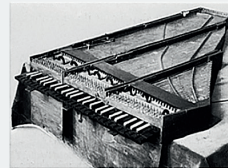
Nachbarobjekte



Lebensgroße Wachsossierung
 Kronprinz Friedrich Ludwigs,
 zweijährig



Lebensgroße Wachsossierung
 König Friedrichs I.



Reisecembalo der Herzogin von
 Orléans



Brasilianische Möbelgarnitur aus
 Elfenbein des Johann Moritz von
 Nassau-Siegen



Stock aus einem Stück Schildpatt



Kamee aus Achat mit Darstellung
 des Urteils des Paris



Kat. Nr. 59
 Bronzebüste König Carl I.
 Nuss aus Eisen

3 | View of an object entry in the research environment with chronologically arranged source information.

and places via the corresponding relations, and the transformations of states can be contextualized. As a result, the ontology is an ideal framework for creating a multidisciplinary data model for the source-based reconstruction of historical collection holdings.

A Source-Based Reconstruction

The Berlin Kunstkammer and the information about its objects have been catalogued using a source-based approach. This means that the starting point of our work was not the surviving objects, as these represent only a fraction of the original holdings. Rather, the holdings were reconstructed on the basis of source materials. This approach takes into account the fact that knowledge about many objects has survived only in textual form, while also constantly keeping users informed as to the source of the object information.

The data model transposes the project's object-biographical approach to the digital realm by representing a documentation flow that records, via attribute assignments, the objects and object information contained in the sources, starting from individual archival materials and their transcriptions. Assignments of object information include appellations, materials, themes, actors linked to an object, type of presentation, location in the collection rooms, provenance information, state of preservation, and even the classification system governing object assignments (e.g. *naturalia* or *ivory figurines*). In this way, every kind of object information can be traced to a source and further contextualized based on its specific wording. In addition, assignments use standardized vocabulary that interconnects the information (about people, places, materials, themes, etc.) and allows users to search for it across holdings. The information extracted from the content of the processed sources merges with the objects in the knowledge network and produces specific histories of concepts, locations, and classification systems. These histories coalesce into an object biography based on the in-depth cataloguing of sources. The information produced and compiled in this way goes beyond a reconstruction of the provenance of an object; the approach also makes it possible to represent contradictory or ambiguous information and partially resolve such contradictions and ambiguities by pooling and comparing information.⁹

As part of the source-based reconstruction of the holdings of the Berlin Kunstkammer, objects have been identified and linked by means of various sources. The systematic cataloguing of a defined, extensively documented period makes it possible to trace the dynamics of the collection from 1668 to 1793, particularly the *naturalia*.¹⁰ Such an approach is a desideratum for the remaining collection holdings and for the more in-depth cataloguing of the nineteenth-century archival records – work that came to a temporary end with the cataloguing of the Kunstkammer guide of 1805 in the 2018–2022 project phase. Scholars can now use the object search in the research environment to study the approximately 2,000 objects that have thus far been catalogued from selected sources.¹¹ The filter criteria, which in part reflect the object information collected via attribute assignments, provide access to objects by genre, material, links to actors, and origin. In the “Cultural Practices” category, users can select experimentally developed filters that cover perceptual aspects (haptic, olfactory, auditory, etc.) and information on presentation, communication, narrative practice, and interaction. The various options to filter by source, by the defined date of the snapshot of the holdings, by object location, and by classification system shed additional light on the collection and its dynamics. The source search that has been set up parallel to the ob-

ject search facilitates research into the various sources based on date, genre (e.g. inventory, travel report, database), and collection classification system.¹²

This type of digital reconstruction of a curiosity cabinet allows users to access content in various ways and to organize access flexibly. It frees holdings from a spatial order and makes it possible to explore the multilayered semantics of the objects. With the help of Semantic Web technologies, the Berlin Kunstkammer has been transformed into a virtual collection space and knowledge network that facilitates complex, multifaceted connections that had previously existed only in ideal models.

Translated by Adam Blauhut

Notes

- 1 The virtual research environment of the Berlin Kunstkammer can be accessed at www.berliner-kunstkammer.de. We are grateful to Michael Willenbücher, Claudia Bachmann, and Sebastian Delius for the operation, design, and implementation of the virtual research environment's web presence.
- 2 On virtual collection spaces, see Nasarek 2020.
- 3 For an overview of sources in the research environment, see www.berliner-kunstkammer.de/uebersicht-der-quellen (accessed 15 December 2021).
- 4 Most of the sources have been transcribed by the project team or by participants in the transcription workshop of the Museum für Naturkunde, a citizen science symposium in which handwritten documents are transcribed in collaboration with the museum's science history projects. See Transcription Workshop, Museum für Naturkunde, <https://www.museum-fuer-naturkunde.berlin/en/museum/participate/transcription-workshop> (accessed 8 February 2022).
- 5 See W3C, Semantic Web.
- 6 See WissKI at wiss-ki.eu (accessed 8 February 2022); Scholz/Görz 2012; Fichtner 2018.
- 7 This mode of describing and integrating information is based on the Linked Data concept, a sub-aspect of the Semantic Web.
- 8 The CIDOC CRM was developed as a formal reference ontology by the International Committee for Documentation of the International Council of Museums (ICOM). It has been recognized as an ISO standard (ISO 21127) since 2006; see ICOM, CIDOC CRM. The so-called Erlangen CRM is a machine-readable version based on OWL (Web Ontology Language). It was used in our project as a top-level ontology to develop a special, application-specific ontology.
- 9 See Wagner 2020.
- 10 Including Katalog 1668/1680, Inventar 1685/1688, Eingangsbuch 1688/1692a, Inventar 1694, Verzeichnis 1735, Küster 1756, Nicolai 1786a, Verzeichnis Naturalien 1793.
- 11 On the object search, see www.berliner-kunstkammer.de/suche (accessed 26 January 2022).
- 12 On the source search, see www.berliner-kunstkammer.de/suche-quellen (accessed 26 January 2022).