# Cultural Heritage

##### Session 1.4 (SEMANTiCS)

#### Time: Thursday, September 21, 2023 - 10:45 to 13:00

#### Chair: Silvio Peroni, Associate Professor, University of Bologna

## **Talks**

### TRANSRAZ Data Model: Towards a Geosocial Representation of Historical Cities

Preserving historical city architectures and making them publicly available has emerged as an important field of the cultural heritage and digital humanities research domain. In this context, the TRANSRAZ project is creating an interactive 3D environment of the historical city of Nuremberg which spans over different periods of time. Next to the exploration of the city's historical architecture, TRANSRAZ is also integrating information about its inhabitants, organizations, and important events, which are extracted from historical documents semi-automatically. Knowledge Graphs have proven useful and valuable to integrate and enrich these heterogeneous data. However, this task also comes with versatile data modeling challenges. This paper contributes the TRANSRAZ data model, which integrates agents, architectural objects, events, and historical documents into the 3D research environment by means of ontologies. Goal is to explore Nuremberg's multifaceted past in different time layers in the context of its architectural, social, economical, and cultural developments.

| Sasha BrunsFIZ Karlsruhe - Leibniz-Institut für Informationsinfrastruktur GmbH[Affiliation page](https://www.fiz-karlsruhe.de/en) | Since 2020, Sasha Bruns is a PhD student at FIZ Karlsruhe and KIT. She gained her Bachelor's and Master's degrees in Computational Linguistics and now specialises in Semantic Web Technologies, in particular ontology and Knowledge Graph development for Cultural Heritage domain |
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### Virtual Reality based Access to Knowledge graphs for History Research

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### Building the Dutch Linked Data Space for Cultural Heritage

| Enno MeijersKoninklijke Bibliotheek, National Library of the Netherlands[Affiliation page](https://www.kb.nl/en) | Enno Meijers is information manager at the Koninklijke Bibliotheek, national library of the Netherlands. His main focus area is metadata- and discovery infrastructures in the domains of libraries, digital heritage and digital humanities. Alignment of internal and external metadata infrastructures is one of the main projects he is working. He is also involved in the development of a cross domain distributed discovery infrastructure for the Dutch heritage collections run by a government sponsored program. Linked Data and distributed web technologies are at the main building blocks in both cases. Earlier Enno has been leading the development of the National Library Catalogue platform for the national digital infrastructure of the public libraries. He is one of the founders of the Dutch DBpedia Chapter and currently a member of the DBpedia Association board. He studied Electrical Engineering and Business Informatics and has been working in the library domain for nearly twenty years. |
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### Polyvocal Knowledge Modelling for Ethnographic Heritage Object Provenance

Purpose: Information about biographies of museum object objects (object provenance) is often unavailable in a machine-readable format. This limits the findability and reusability of object provenance information for domain research. We address the challenges of defining a data model to represent ethnographic cultural heritage objects' provenance, which includes multiple interpretations (polyvocality) of, and theories for, the object biography, chains of custody and context of acquiring.

Methodology: To develop a data model for representing the provenance of ethnographic objects, we conducted (semi-)structured interviews with five provenance experts to elicit a set of requirements. Based on these requirements and a careful examination of six diverse examples of ethnographic object provenance reports, we established a set of modelling choices that utilise existing ontologies such as CIDOC-CRM (a domain standard) and PROV-DM, as well as RDF-named graphs..

Evaluation: Finally, we validate the model on provenance reports containing six seen and five unseen ethnographic cultural heritage object from three separate sources. The 11 reports are converted into RDF triples following the proposed data model. We also constructed SPARQL queries corresponding to nine competency questions elicited from domain experts in order to report on satisfiability.

Findings: The results show that the adapted combined model allows us to express the heterogeneity and polyvocality of the object provenance information, trace data provenance and link with other data sources for further enrichment.

Value: The proposed model from this paper allows publishing such knowledge in a machine-readable format, which will foster information contextualisation, findability and reusability.

| Sarah Binta Alam ShoileePhD Candidate, Faculty of ScienceVrije Universiteit Amsterdam | Sarah is a Computer Science Ph.D. candidate at Vrije Universiteit Amsterdam, where she is investigating the use of state-of-the-art machine learning and semantic web technologies for Knowledge Discovery in Colonial Heritage Objects Database. With a Masters in Artificial Intelligence from Katholieke Universiteit Leuven and solid background in Computer Science, her current research interest includes Digital Humanities, Knowledge Graph and use of Graph Embedding Techniques. |
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