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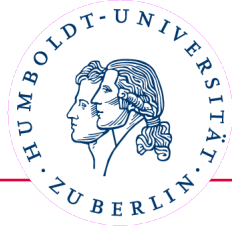
The Europeana Data Model: Constraints and Opportunities

Prof. Dr. Stefan Gradmann

Based on work done with M. Doerr, S. Hennicke, A. Isaac, C. Meghini, G. Schreiber, H. Van de Sompel

And more generally **Europeana V1.0** and **EuropeanaConnect**

Overview



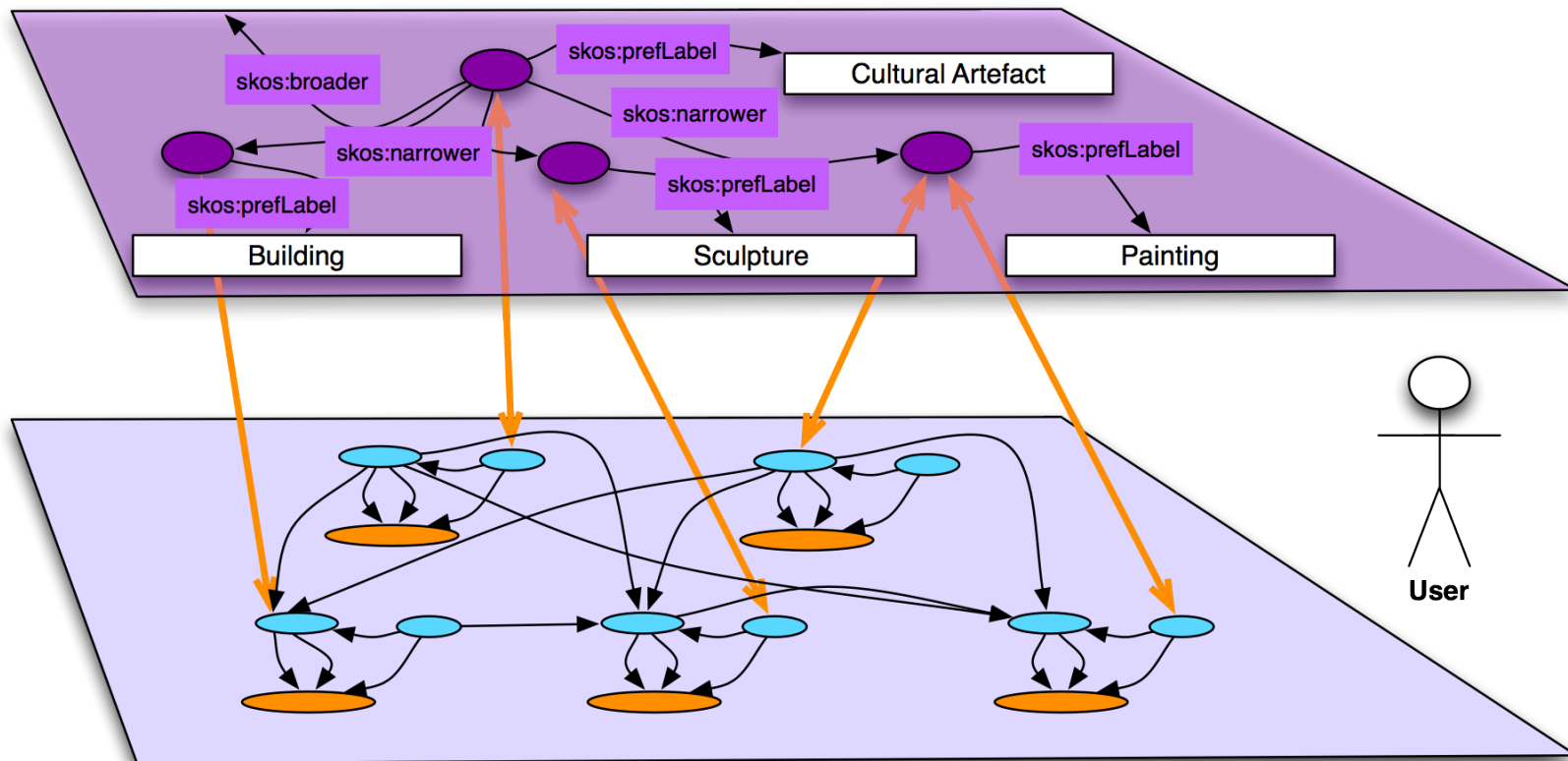
- The Big Picture: semantic Contextualisation in Europeana
- The Europeana Data Model (EDM)
 - Basics & Constraints
 - Les Fleurs du Mal and more ...
 - Status Quo
- Opportunities

EDM: The Big Picture

Objects and Semantic Context in Europeana's Big Picture



Contextualised Object Representations (→ Knowledge Generation):
Europeana connects Organisation of Objects and Knowledge
Semantic Network



Networked Object Representations

The EDM: Constraints and Opportunities

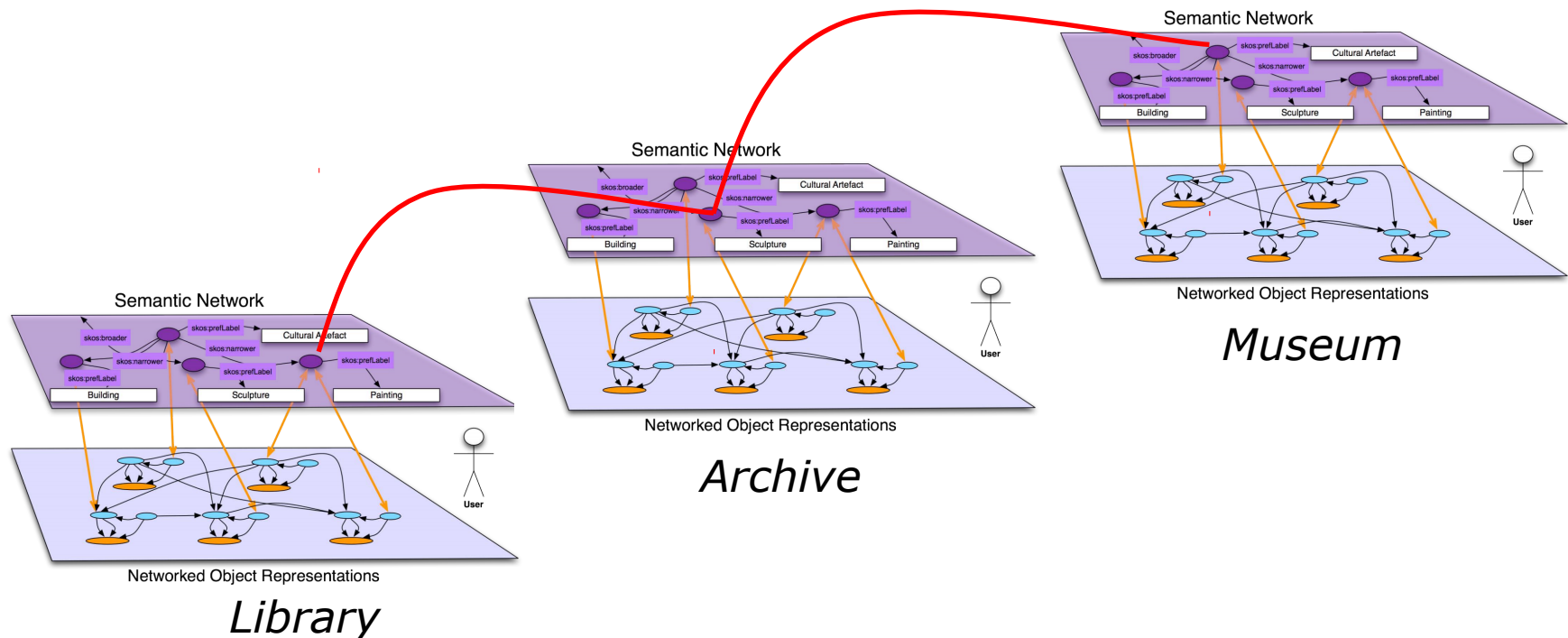
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The Semantic Data Layer

Bridging „isles of information“ by connecting objects from different domains via cross-vocabulary links.



DBpedia

VIAF

GND

Geonames

Eurécom
LCSH



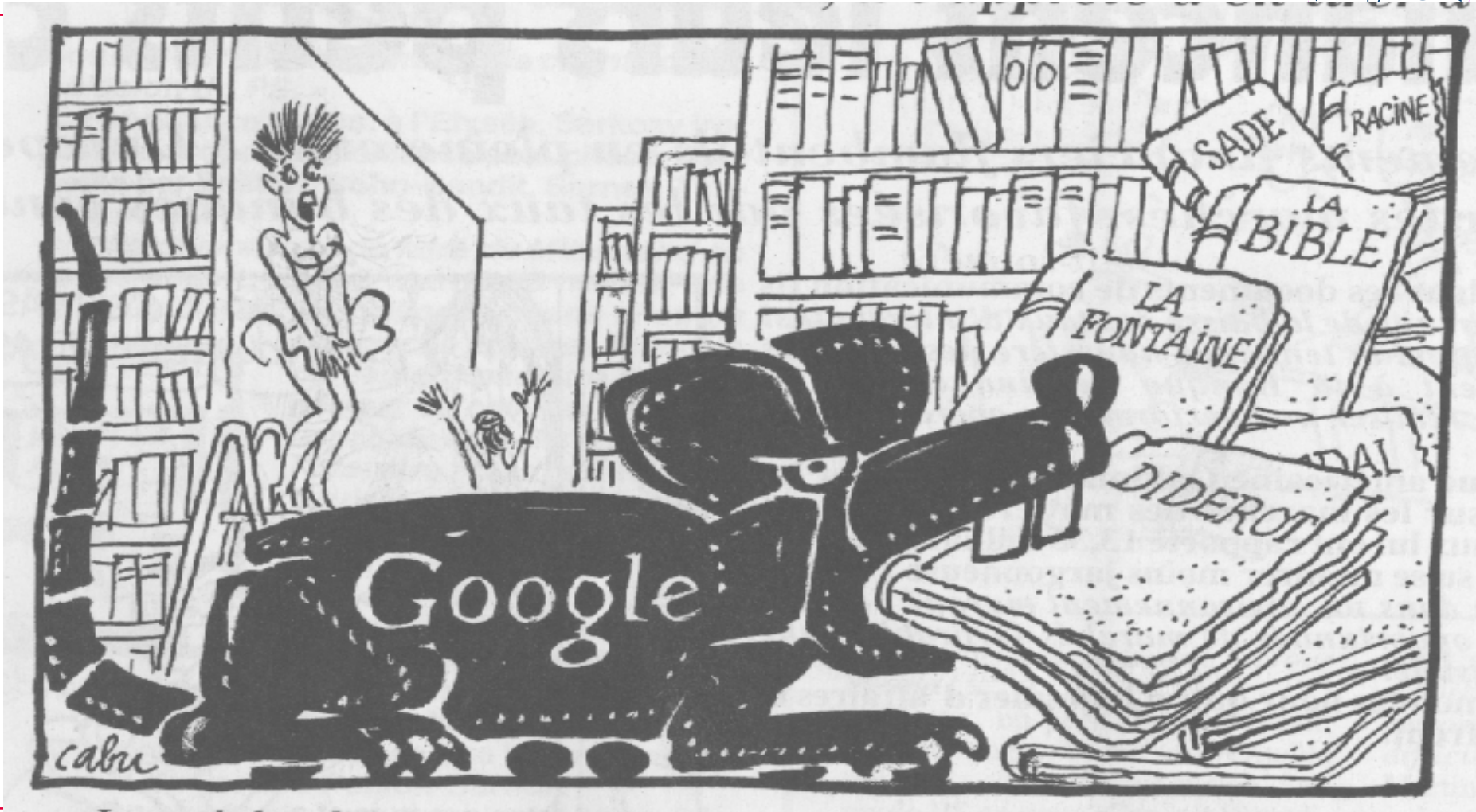
Europeana-Objects

Networked Object Representations

EDM

Basics & Requirements

Pre-Europeana



"Europeana Semantic Elements" (ESE)

- Created for 2008 version of Europeana
- enforces interoperability by converting datasets to a Dublin-Core like "flat" representation
- "simple and robust" but:
 - original metadata is not visible anymore
 - no specializations to finer-grained models
 - no connections to external (open data) resources
- Probably shouldn't have been called "semantic" :-)

EDM: Requirements and Design Principles



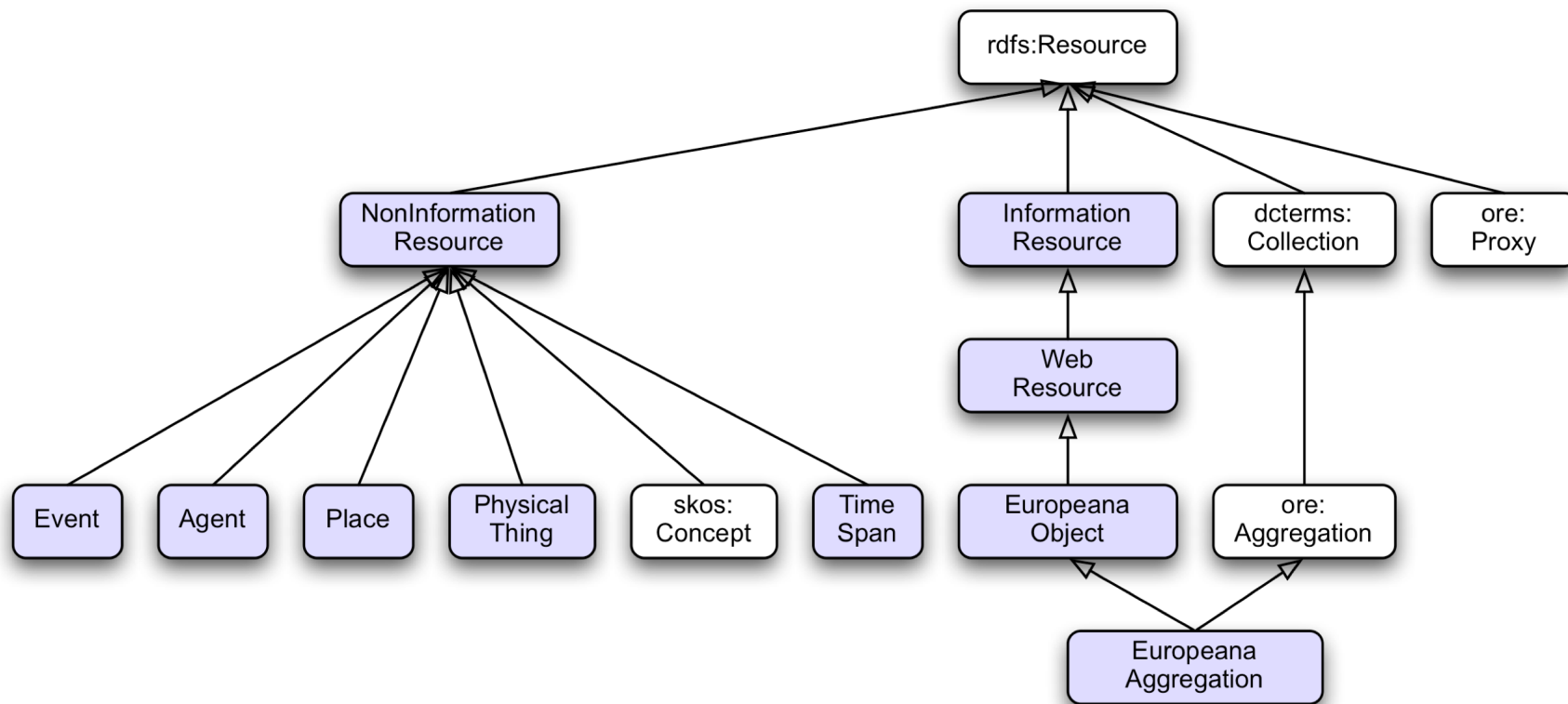
Requirements evident from data analysis, from talking to experts as well as from meetings with all communities:

- Distinction of real **object** (book, picture, file, multimedia object) and its digital **representation**
- Distinction between **object properties** and descriptive **metadata**
- **several perspectives of object** must be possible with potentially contradicting statements
- Support for complex **composite objects**
- **Standard** format for metadata with **specializing options**
- **Standard** format for vocabularies with **specializing options**
- Maximum **reuse** of existing standards

EDM and Standards

- Simple Knowledge Organization System (**SKOS**)
 - Models the KOSs in the Semantic Data Layer of Europeana.
 - Allows for matching between KOSs.
- DCMI Metadata Terms (**DCTerms**)
 - Used for a core of semantically interoperable properties for descriptive metadata about an object.
 - Ensures backwards compatibility to ESE.
- Open Archives Initiative Object Reuse & Exchange (**OAI ORE**)
 - Organizes object representations in Europeana as aggregations of WWW resource
 - Provided Object: Represents the described object of interest.
 - Digital Representation: Some digital view of the object.
 - Proxy: The description of the provided object from one given perspective.
 - Aggregation: Groups all information pieces together.

EDM: Classes



Les Fleurs du Mal: UNIMARC

<http://catalogue.bnf.fr/ark:/12148/cb37367035f>



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102 \$aFR

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106 \$ar

2001 \$a^Les %ofleurs du mal\$bTexte imprimé\$fpar Charles Baudelaire

210 \$aParis\$cPoulet-Malassis et De Broise\$d1857

215 \$a248 p.\$d19 cm

676 \$a841.8\$v22

686 \$a840\$2Cadre de classement de la Bibliographie nationale française

700 |\$311890582\$aBaudelaire\$bCharles\$4070

801 0\$aFR\$bBNF\$c19920409\$gAFNOR\$2intermrc

Les Fleurs du Mal: Gallica

<http://gallica.bnf.fr/ark:/12148/bpt6k70861t>



Gallica Consultation : Les fleurs du mal / par... page Non paginé of 258 (Display: Normal)

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Baudelaire, Charles, 1857
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Title : Les fleurs du mal / par Charles Baudelaire
Author : Baudelaire, Charles
Publisher : Poulet-Malassis et De Broise (Paris)
Date of publication : 1857
Type : monographie imprimée
Language : French
Format : 248 p. ; 19 cm
Format : application/pdf
Copyright : domaine public
Identifier : [ark:/12148/bpt6k70861t](http://gallica.bnf.fr/ark:/12148/bpt6k70861t)
Source : Bibliothèque nationale de France, Rés. Ye-3535
Relation : <http://catalogue.bnf.fr/ark:/12148/cb37367035f/description>
Provenance : bnf.fr
Theme : French & related literatures

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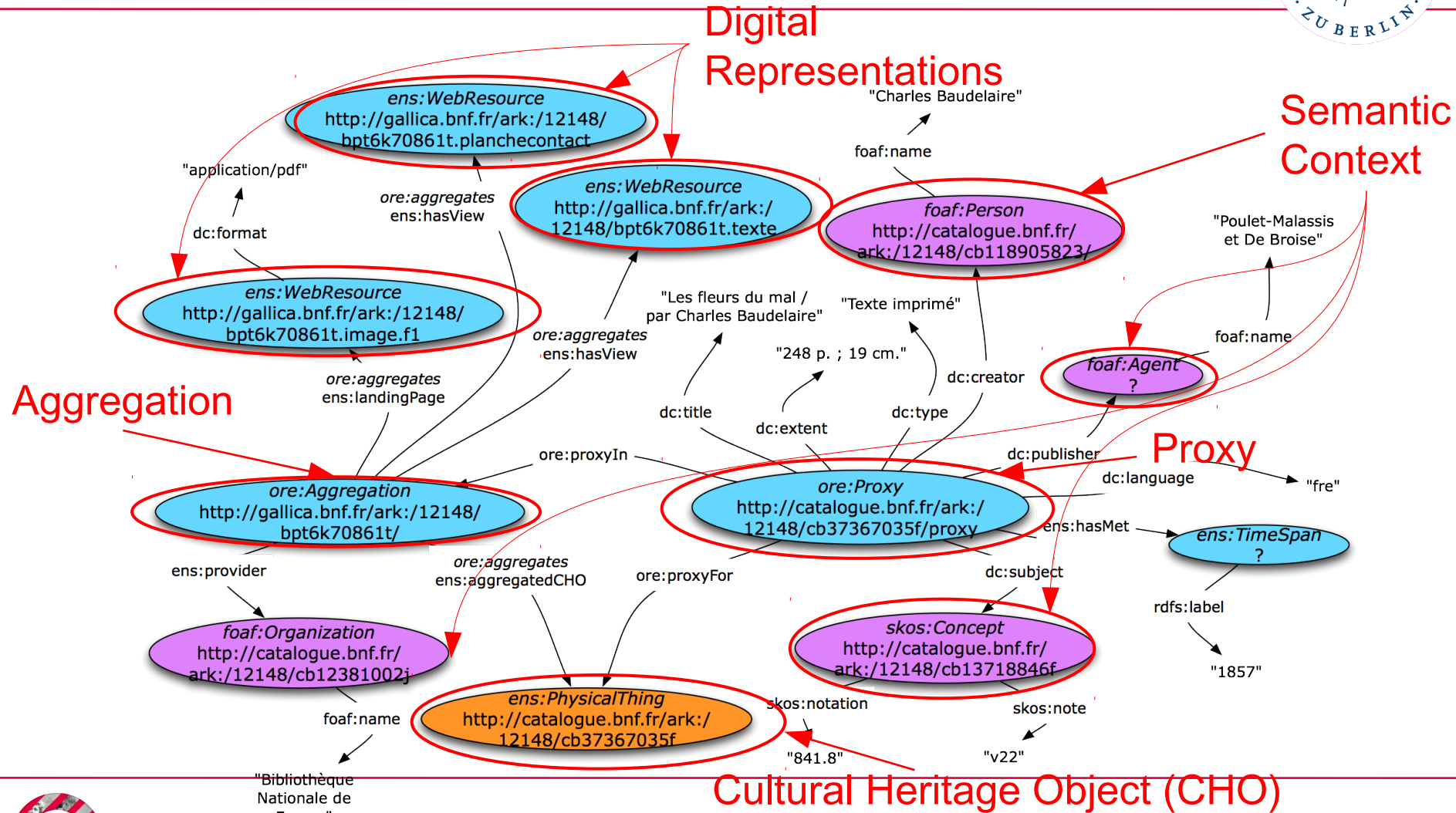
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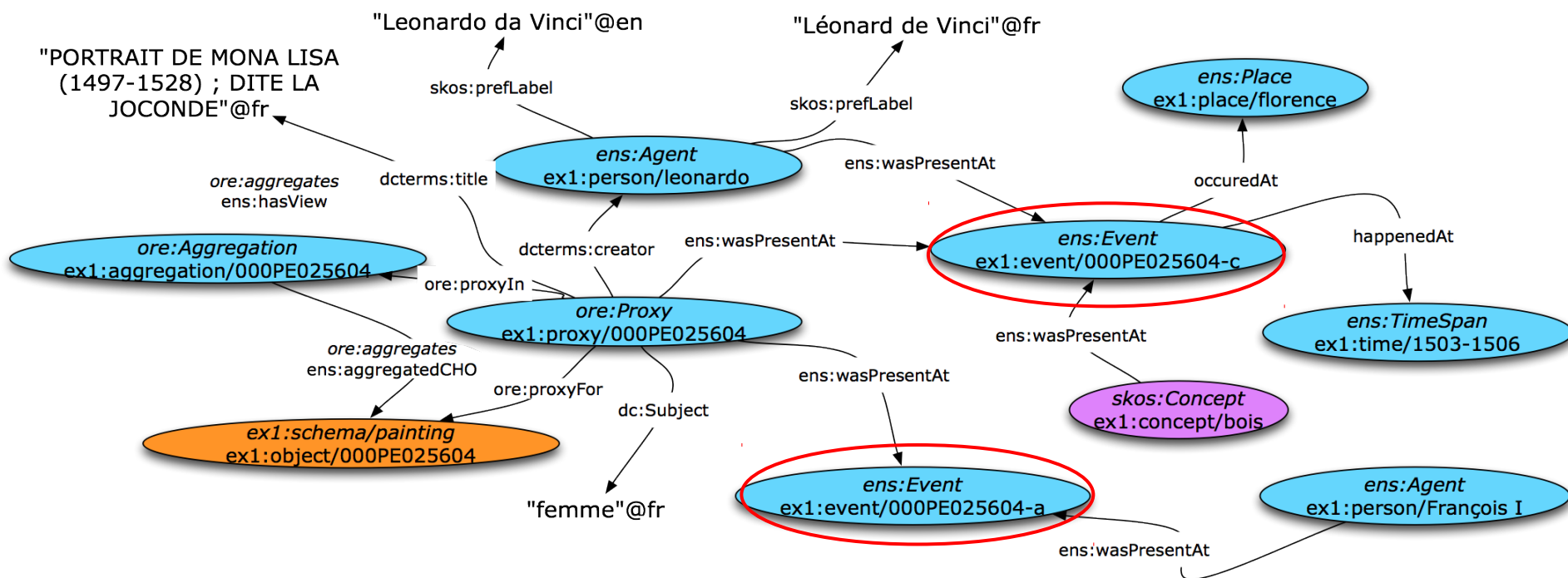
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Les Fleurs du Mal in EDM

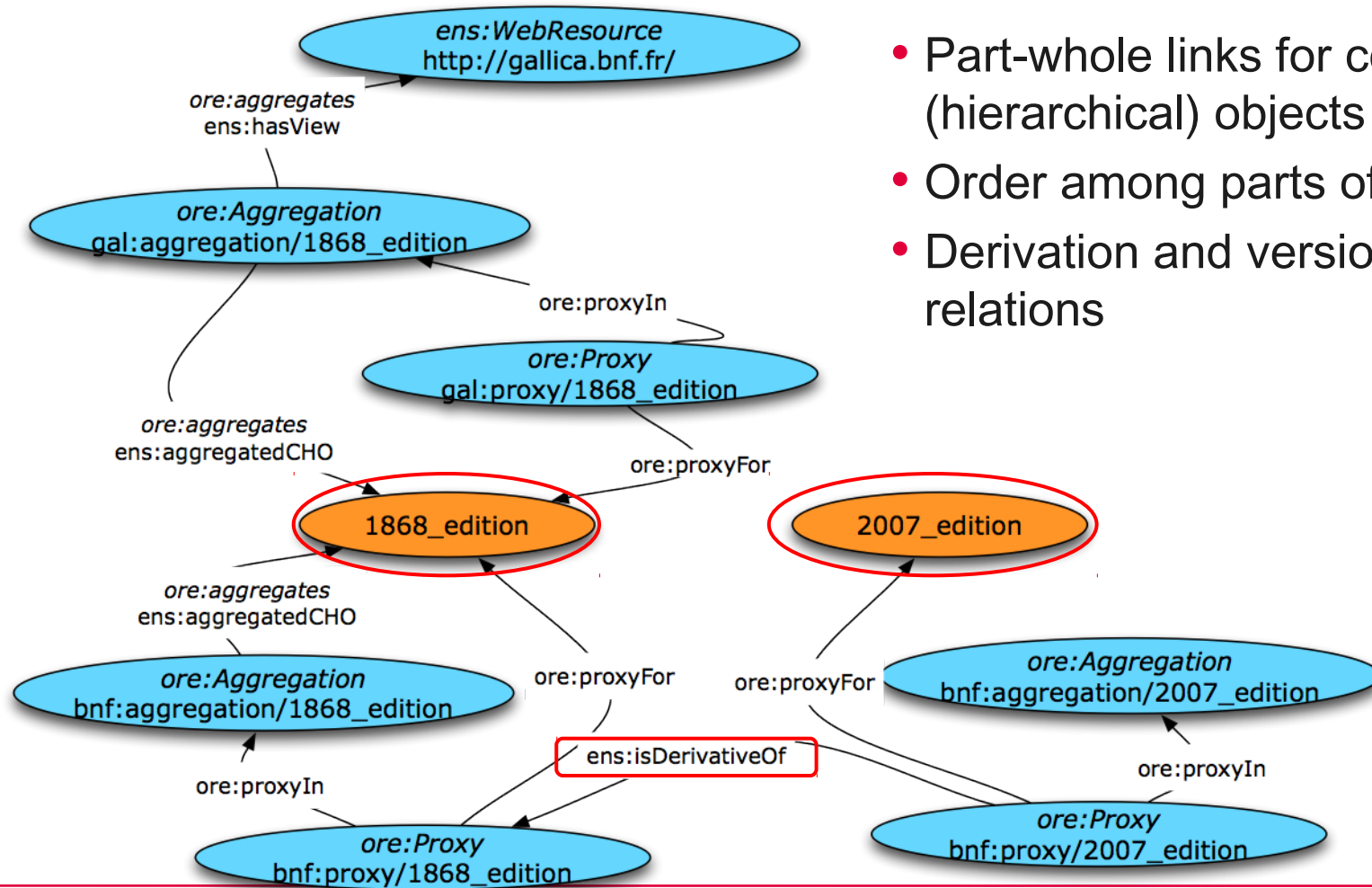


Event Centric Modelling

Preserving and exploiting original data also means being compatible with descriptions beyond simple object level



Complex Objects and Properties



- Part-whole links for complex (hierarchical) objects
- Order among parts of objects
- Derivation and versioning relations

```
<...xmlns:europaana="http://www.europeana.eu/schemas/ese/"
```

```
...
```

```
<!--National Library of Poland-->
```

```
<record>
```

```
  <dc:identifier>urn:repox.bn.org.pl:polona:oai:www.polona.pl:4445</dc:identifier>
```

```
  <europaana:uri>http://www.europeana.eu/resolve/record/01406/18A8F5DFCAE75694A8AAD18E2791861FBE92589A</europaana:uri>
```

```
    <dc:title>[Ośmiu powstańców uzbrojonych w kosy] [Dokument ikonograficzny]</dc:title>
```

```
    <dc:subject>Powstanie 1863 r. styczniowe - ikonografia</dc:subject>
```

```
    <dc:date>[1863-1864]</dc:date>
```

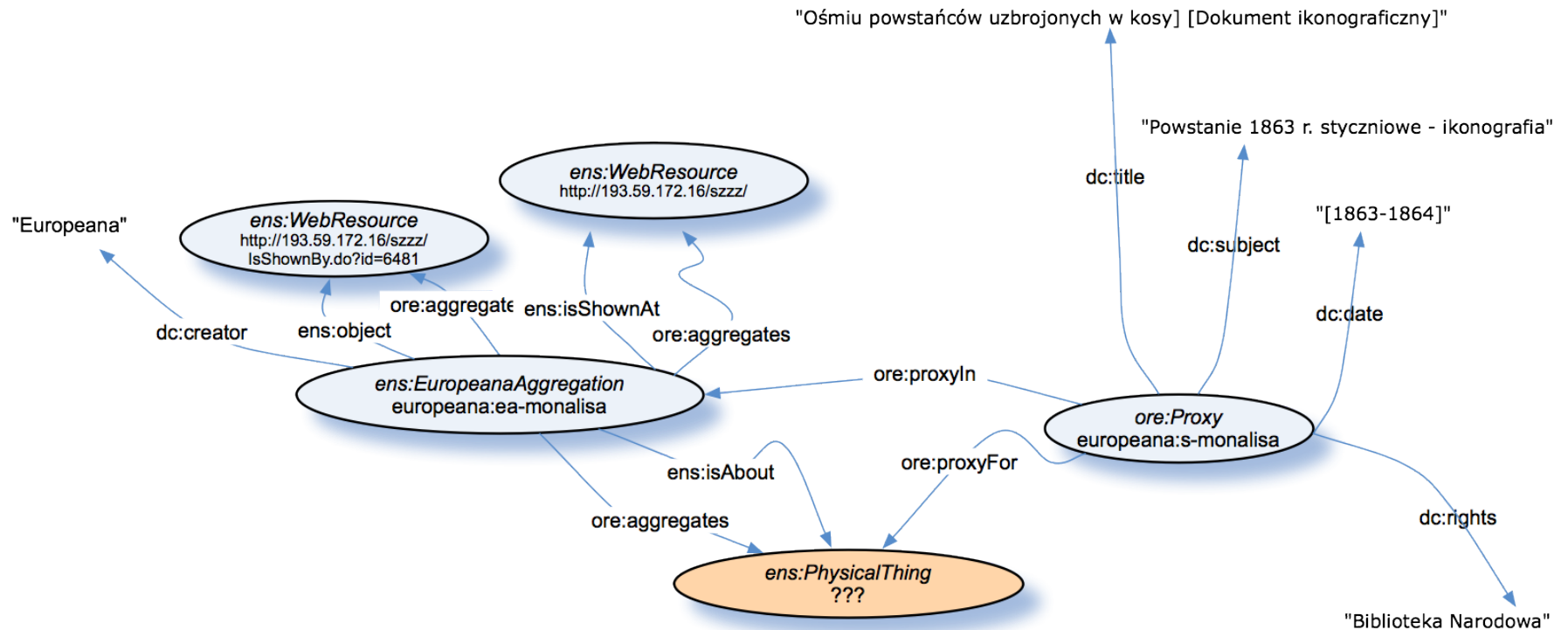
```
    <dc:rights>Biblioteka Narodowa</dc:rights>
```

```
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```

```
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```

```
</record>
```


... in EDM



Status of the EDM

Current State of the EDM

- **Confirmed feasibility** in four community workshops (archives, libraries, audiovisual archives, museums).
- **Linked Open Data Pilot** is based on the EDM.
- Rolling out in the **Europeana Portal** backoffice is still to come
- **Documentation** is available:
 - EDM Specifications and Primer at <http://version1.europeana.eu/web/europeana-project/technicaldocuments/>
 - Martin Doerr, Stefan Gradmann, Steffen Hennicke, Antoine Isaac, Carlo Meghini, Herbert van de Sompel: The Europeana Data Model. IFLA 2010 (Gothenburg). Session on „Libraries and the Semantic Web“. <http://www.ifla.org/files/hq/papers/ifla76/149-doerr-en.pdf>
 - Development documentation and OWL-Ontology in EuropeanaLabs: <http://europeanalabs.eu/>



Opportunities

EDM: Opportunities



- **Reuse of Europeana Data** in the LoD cloud
- **Reuse of LoD cloud** within Europeana
- Make Europeana a prime resource for Digital Humanities community by **providing scholarly heuristics** building on LoD
- **Reduce data flows**: prefer linking over replication!
- Aim at a **truly distributed data architecture** → Europeana V2.0 WP7



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Questions?

Europeana v1.0 WP3

EuropeanaConnect WP1

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