Aalto University
School of Science

UNIVERSITY OF HELSINKI

SeCo

HELDIG
Helsinki Centre for Digital Humanities

Mapping Manuscript Migrations

Dr. Mikko Koho
University of Helsinki (HELDIG) and Aalto University

Dr. Toby Burrows
Oxford e-Research Centre, University of Oxford

Oxford e-Research Centre

UNIVERSITY OF OXFORD

Mapping Manuscript Migrations: Digging Into Data For The History And Provenance Of Pre-Modern European Manuscripts

Abstract

Hundreds of thousands of pre-modern European manuscripts have survived until the present day. As the result of changes in their ownership over the centuries, they are now spread all over the world. Collectively they constitute a great cultural and scholarly treasure. There are many sources of data relating to them, and new sources continue to proliferate in the digital environment. This project will link disparate datasets from Europe and North America to provide an international view of the history and provenance of these manuscripts. The aggregated data will enable researchers to analyse and visualize these topics at scales ranging from individual manuscripts to thousands of manuscripts. Our research will address their origins and movements, and the collectors and owners involved in their history. We will be able to show how these manuscripts have traveled across time and space to their current locations, where they continue to find new audiences.

Principal Investigators

Toby Burrows, University of Oxford, United Kingdom, AHRC/ESRC
Eero Hyvönen, Aalto University, Finland, AKA
Lynn Ransom, University of Pennsylvania, United States, IMLS
Hanno Wijsman, Institut de recherche et d'histoire des textes, France, ANR

MMM Project Team

- Oxford: Toby Burrows, David Lewis, Andrew Morrison, Kevin Page, Pip Willcox, Thanasis Velios, Graham Klyne

- Aalto: Eero Hyvönen, Esko Ikkala, Mikko Koho, Jouni Tuominen

- IRHT: Hanno Wijsman, Antoine Brix, Synnøve Myking, Guillaume Porte, Pierre-Louis Pinault, Nicole Bergk-Pinto, Alexandre Gaudin, Mahaut Cazals

- Pennsylvania: Lynn Ransom, Doug Emery, Mitch Fraas, Benny Heller, Emma Thomson

MMM Project Goals

- Collect and transform heterogeneous data from various sources to a unified Data Model
- Expose the combined data in a Linked Open Data environment
- Implement a software interface for browsing and searching the combined data
- Visualize the data: geographical relationships
- Explore research questions relating to the history and provenance of manuscripts on a large scale
- Make the data and software available for reuse

MMM Data Sources

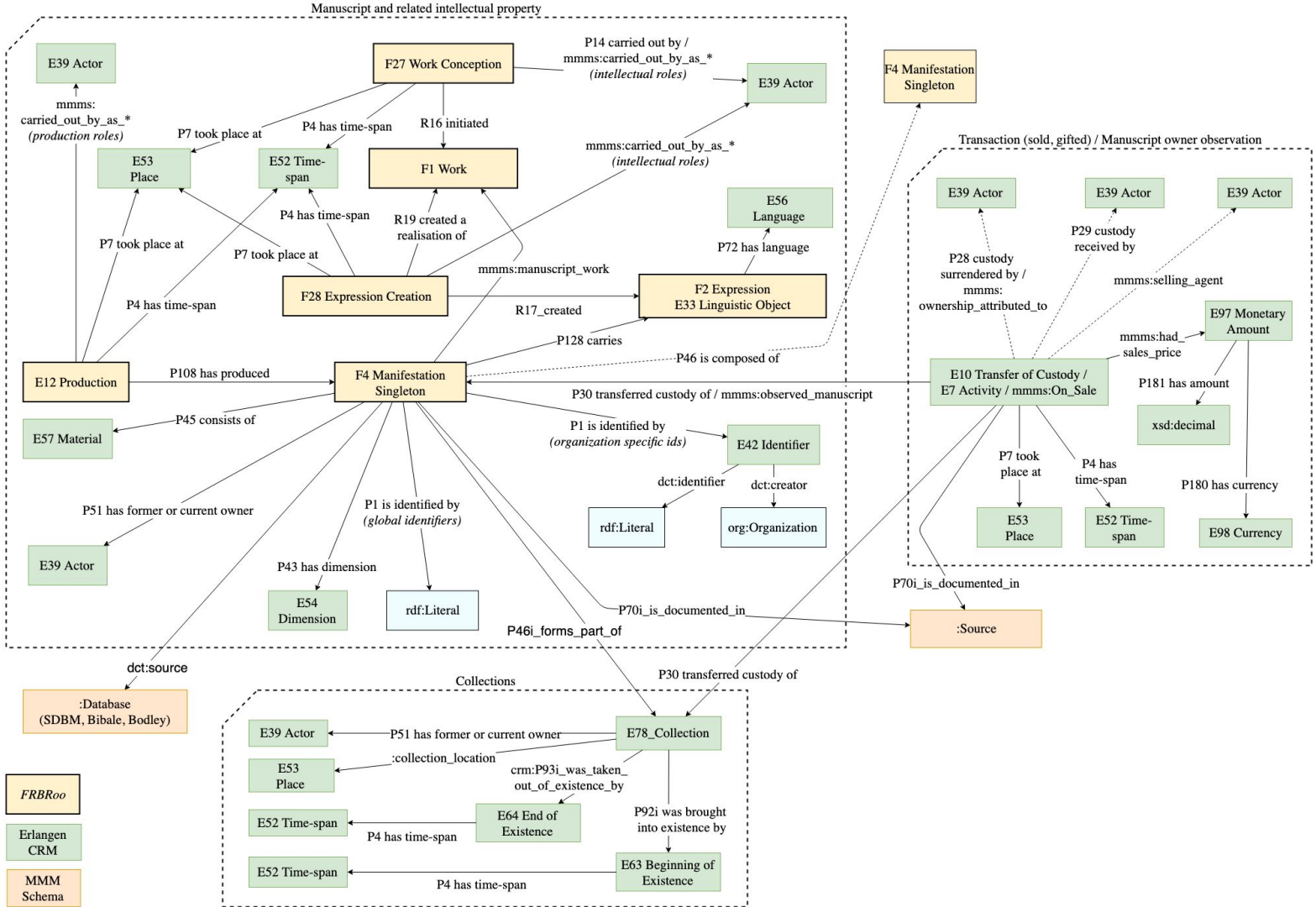
Medieval Manuscripts in Oxford Libraries	Text Encoding Initiative (TEI) XML documents	10,000 catalogue records; more than 1,000 with detailed provenance information
Schoenberg Database of Manuscripts	Relational database - bespoke data model	247,000 records containing provenance-related observations of manuscript histories
Bibale	Relational database - bespoke data model	More than 16,000 manuscript records with detailed provenance information

MMM Project Products

- Unified Data Model for manuscript history and provenance (derived from CIDOC-CRM and FRBR ontologies)
- Conversion and transformation tools and pipelines
- LOD vocabularies with identifiers for 222,000 manuscripts, 435,000 works, 56,000 actors, 5,000 places
- Public SPARQL endpoint to the MMM triple store (20 million RDF triples)
- Public portal: browsing, searching, visualizations (Sampo-UI)
- Data export and downloads (from the public portal and Zenodo data repository)
- GitHub site for tools, data, and documentation
- Publications and presentations (40+)

Making the databases interoperable

- **Linked Data (RDF)**
- **Harmonizing Data Model**
  - CIDOC CRM (Conceptual Reference Model)
  - *IFLA FRBR* (*Functional Requirements for Bibliographic Records)*
  - FRBRoo = CIDOC CRM + FRBR
- **Reinterpreting the source data in terms of the harmonizing data model**
- **Entity Reconciliation**


Manuscript and related intellectual property
E39 Actor
mmms:
carried_out_by_as_*
(production roles)
F27 Work Conception
P14 carried out by /
mmms:carried_out_by_as_*
(intellectual roles)
E39 Actor
P7 took place at
P4 has time-span
R16 initiated
E53
Place
E52 Time-
span
F1 Work
mmms:carried_out_by_as_*
(intellectual roles)
P4 has time-span
R19 created a
realisation of
E56
Language
P72 has language
P7 took place at
P7 took place at
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P4 has time-span
F28 Expression Creation
F2 Expression
E33 Linguistic Object
R17_created
P128 carries
P46 is composed of
E12 Production
P108 has produced
F4 Manifestation
Singleton
P30 transferred custody of / mmms:observed_manuscript
P45 consists of
E57 Material
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dct:identifier
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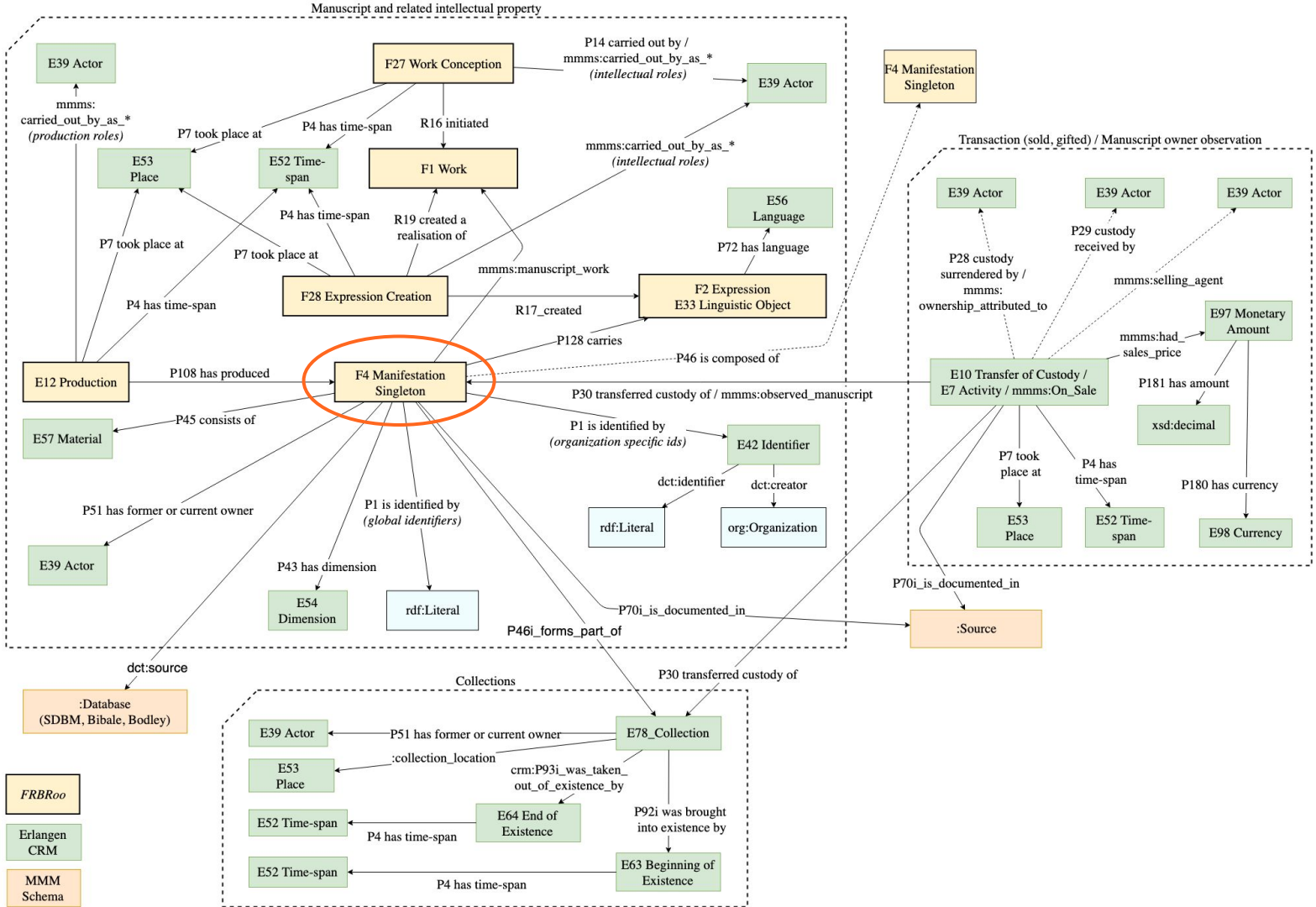
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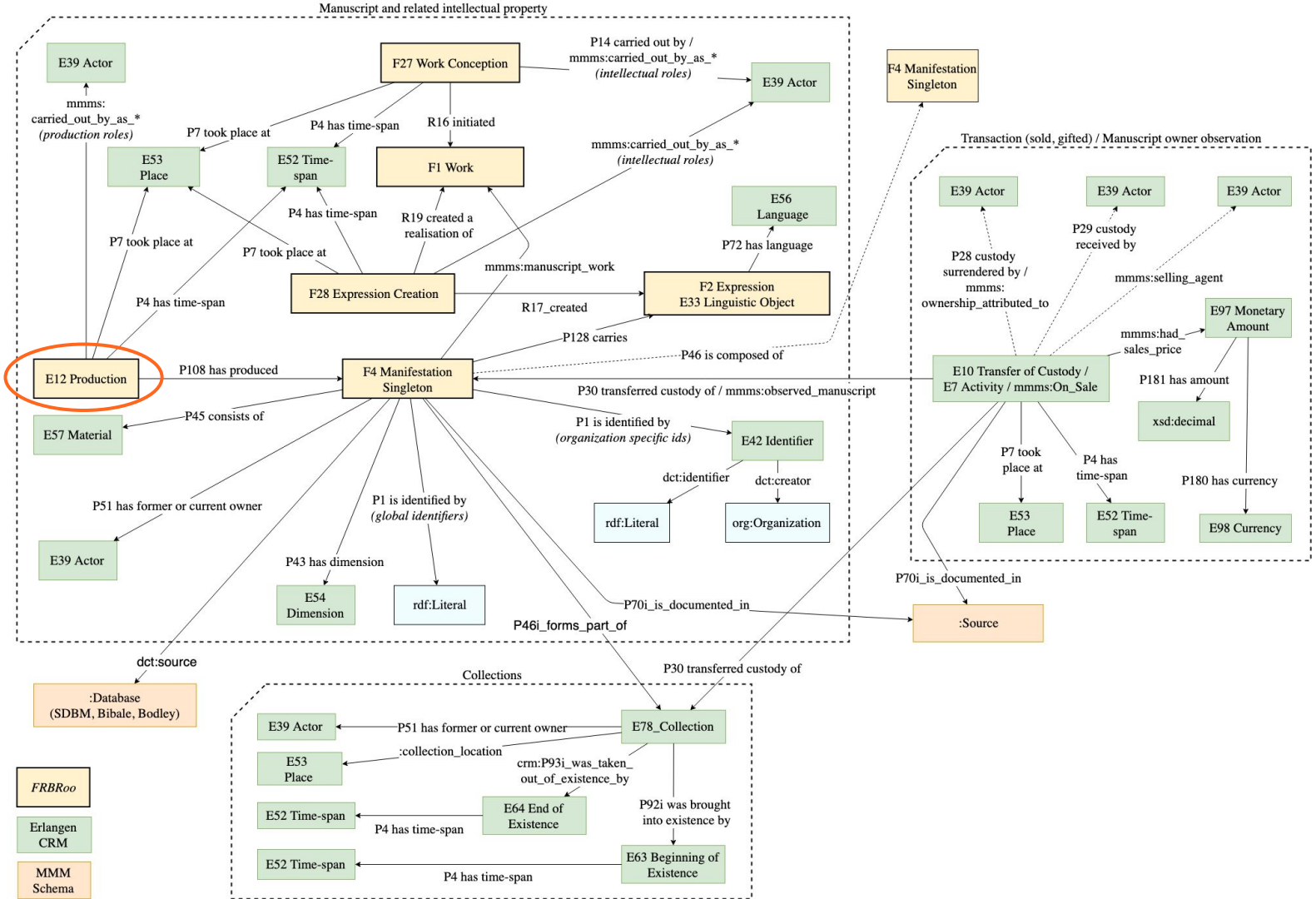
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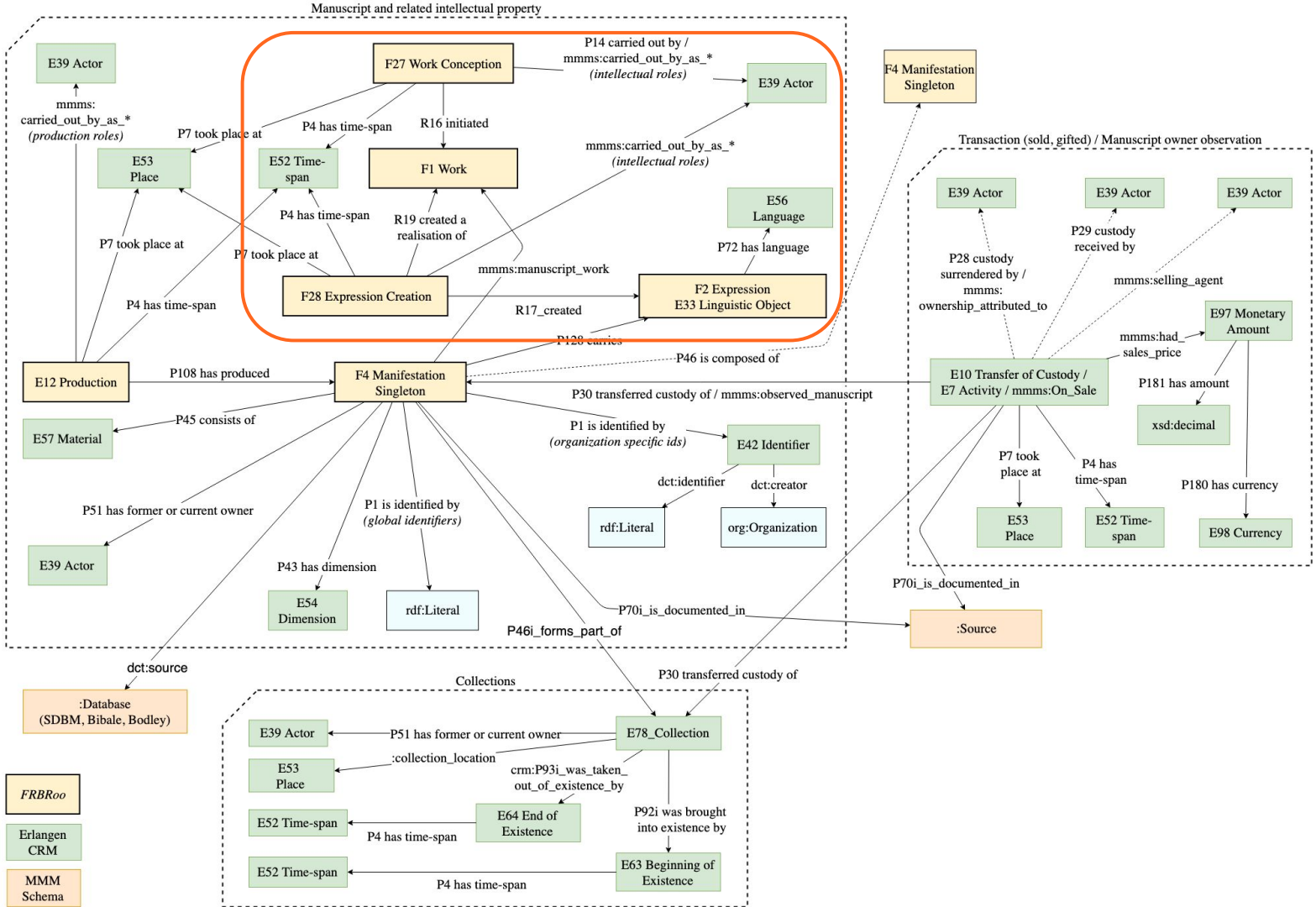
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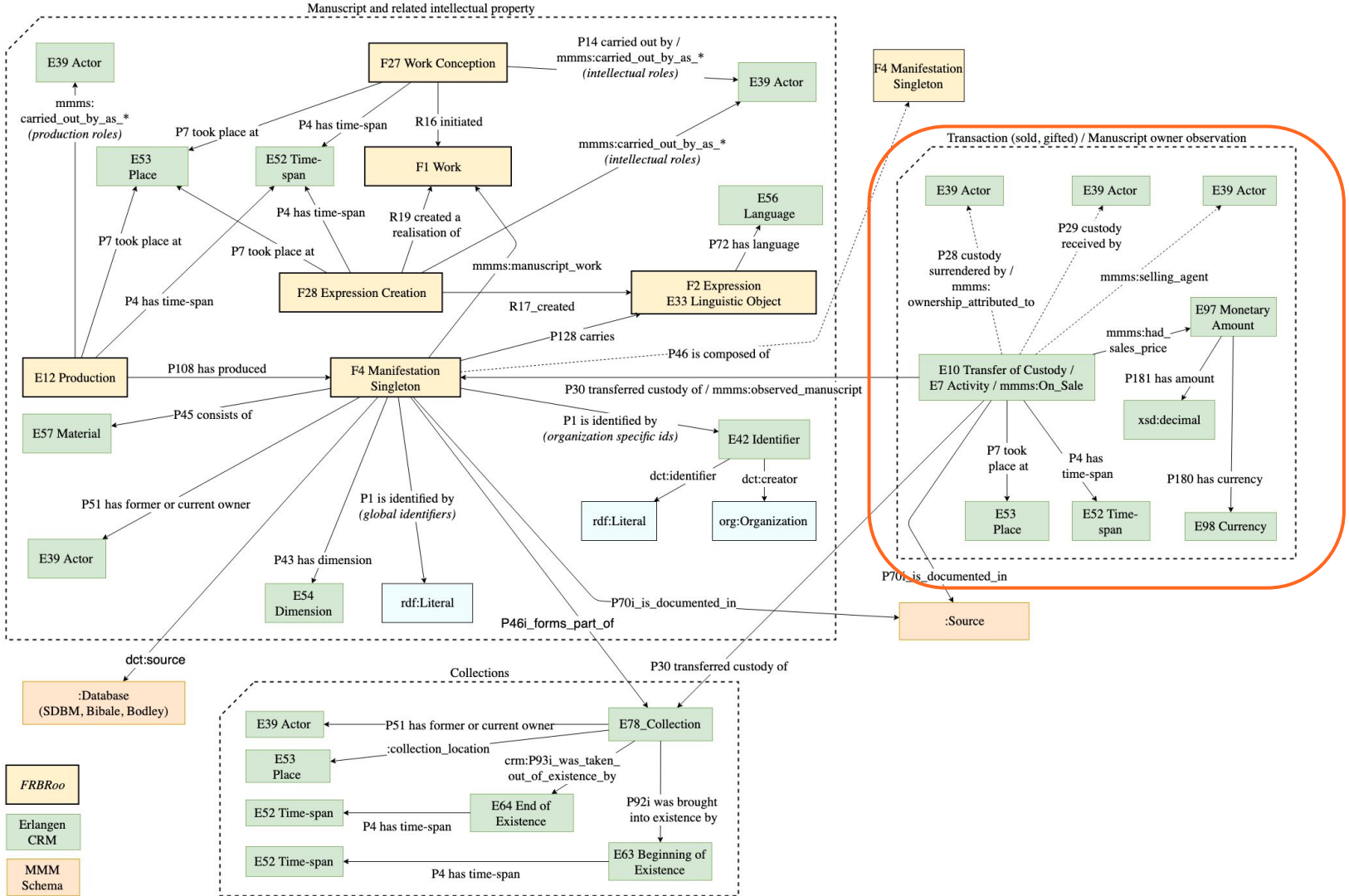
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span
E98 Currency
P70i_is_documented_in
FRBRoo
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Schema

Reconciliation: Vocabularies

	SDBM	Bibale	Oxford
Places	TGN, GeoNames VIAF	GeoNames → map to TGN	TGN GeoNames VIAF, Pleiades
Persons	VIAF	VIAF, BnF, Wikidata	VIAF, Wikidata, SUDOC, LoC
Organizations	VIAF	BnF, VIAF, Wikidata	VIAF, BnF, Wikidata, SUDOC, LoC
Works			Pinakes, Mirabile
Manuscripts		Pinakes, Jonas, Initiale, Medium	Pinakes, Jonas

Oxford, Bodleian Library, Hatton 036

Type Livre (exemplaire)

Permalien http://bibale.irht.cnrs.fr/13060

Comment citer cette notice ?

"Oxford, Bodleian Library, Hatton 036" dans la base Bibale-IRHT/CNRS (permalink

Ouvrir toutes les catégories

Général

Conservé ou Attesté	Volume conservé
Référence Medium ou autre cote d'un livre conservé	Oxford (GB), Bodleian Library, Hatton 036 (Medium)
Contenu indicatif (auteur, titre)	Nicolaus de Clamangiis : Tractatus diversae
Date	*ca* 1426 - *ca* 1450
Lieu	France
Cote livre	Oxford, Bodleian Library, Hatton 036

MS. Hatton 36

Summary ~~Catalogue~~ no.: 4082

Contents

Nicholas de Clamanges, *Works*

Language(s): Latin

Physical Description

Form: codex

Support: parchment

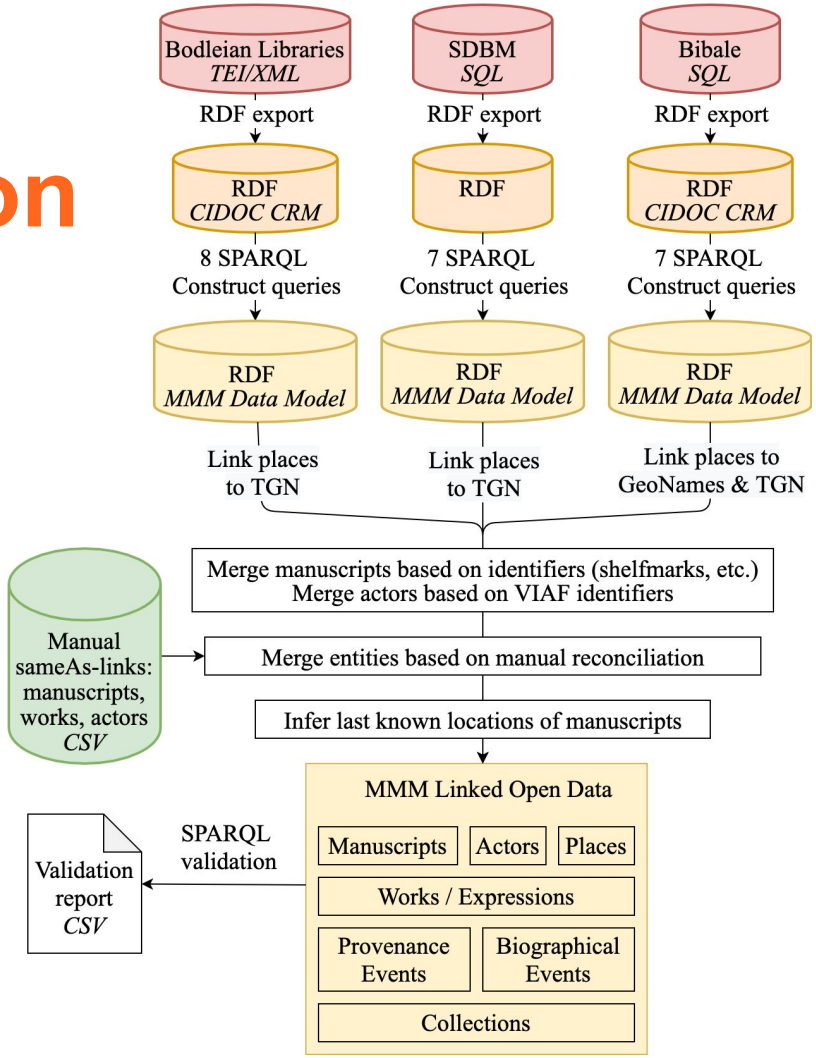
Decoration

Fleuronnée initials (P&A i. p. 72)

History

Origin: 15th century, second quarter ; French

Data Transformation Pipeline

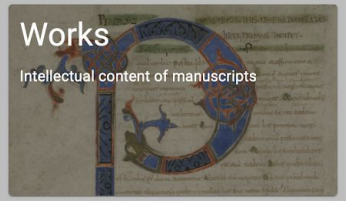


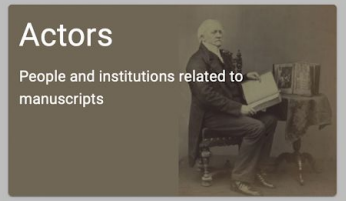
Mapping Manuscript Migrations

Navigating the network of connections between people, institutions, and places within European medieval and Renaissance manuscripts

Mapping Manuscript Migrations (MMM) is a semantic portal for finding and studying pre-modern manuscripts and their movements, based on linked collections of the Schoenberg Institute for Manuscript Studies, the Bodleian Libraries, and the Institut de recherche et d'histoire des textes.

Select a perspective to search and browse the MMM data:





Images used under licenses from Shutterstock.com, Wikimedia, and OPenn.

Oxford e-Research Centre
Bodleian Libraries University of Oxford
The Schoenberg Institute for Manuscript Studies University of Pennsylvania Libraries
cnrs IRHT
Aalto University School of Science
Trans-Atlantic Platform Social Sciences and Humanities
Digging into Data Challenge
UKRI Economic and Social Research Council
Institute of Museum and Library Services
ANR
Academy of Finland

Manuscripts

Use this perspective to access data related to physical manuscript objects. If two or more source datasets include the same manuscript and this has been verified, the information from the source datasets has been merged into one manuscript. See instructions for using the filters. The result view can be selected using the tabs:

- **TABLE** view includes all manuscripts in the MMM data. One table row is equivalent to one manuscript.
- **PRODUCTION PLACES** view visualizes the connection between manuscripts and the places where they were produced.
- **MIGRATIONS** view visualizes the migration of a manuscript from place of production to its most recently observed location.
- **EXPORT** the SPARQL query used to generate the result table view into YASGUI query editor.

Results: 484 manuscripts

Active filters:

Work: civitate

Narrow down by:

Label

Author

Search...

- Augustine, Saint, Bishop of Hippo [329]
- Unknown [61]
- Raoul de Presles (1316-1382) [12]
- Thomas, Waleys, approximately 1287-1350? [11]
- Trevet, Nicolas [11]
- Franciscus, de Mayronis, approximately 1285-approximately 1328 [1
- Gregory, I, Pope, approximately 540-604 [9]
- Bernard, of Clairvaux, Saint, 1090 or 1091-1153 [8]
- Anonymous [8]
- John, of Damascus, Saint [6]

Work

Search

civitate

TABLE | PRODUCTION PLACES | LAST KNOWN LOCATIONS | MIGRATIONS | EXPORT

Rows per page 10 1-10 of 484

Label	Author	Work	Expression	Production place	Production dat
SDBM_MS_18217	Augustine, Saint, Bishop of Hippo	Civitate Dei ...	Civitate Dei ...	Flanders	1100 - 1201 ...
SDBM_MS_orphan_89961	Ambrose, Saint, Bishop of Milan, -397 ...	Advent Domini ...	Advent Domini ...	-	-
SDBM_MS_orphan_89962	Augustine, Saint, Bishop of Hippo	Civitate Dei	Civitate Dei	-	-
SDBM_MS_19551	Augustine, Saint, Bishop of Hippo	Aurelius Augustinus : De Civitate Dei ...	Civitate Dei ...	-	1400 - 1501 ...
SDBM_MS_orphan_107044	Augustine, Saint, Bishop of Hippo ...	Civitate Dei ...	Civitate Dei ...	-	1140 - 1161
SDBM_MS_orphan_109640	Aquinas, Thomas, Saint, 1225-1274 ...	Civitate Dei ...	Civitate Dei ...	-	1440 - 1461
SDBM_MS_orphan_144149	Augustine, Saint, Bishop of Hippo	Civitate Dei	Civitate Dei	Italy	-
SDBM_MS_17549	Augustine, Saint, Bishop of Hippo	Civitate Dei ...	Civitate Dei ...	-	1000 - 1101 ...
SDBM_MS_3779	Augustine, Saint, Bishop of	Legenda sanctorum (Lives of the	Legenda sanctorum (Lives of the	Germany	1400 - 1501

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Results: 222602 manuscripts

Narrow down by:

Label

Author

Search...

- Unknown [136012]
- Augustine, Saint, Bishop of Hippo [4661]
- Jerome, Saint, -419 or 420 [3245]
- Cicero, Marcus Tullius [2575]
- Anonymous [2327]
- Aristotle [2029]
- Gregory, I, Pope, approximately 540-604 [1980]
- Bernard, of Clairvaux, Saint, 1090 or 1091-1153 [1864]
- John Chrysostom, Saint, -407 [1748]
- Aquinas, Thomas, Saint, 1225-1274 [1477]

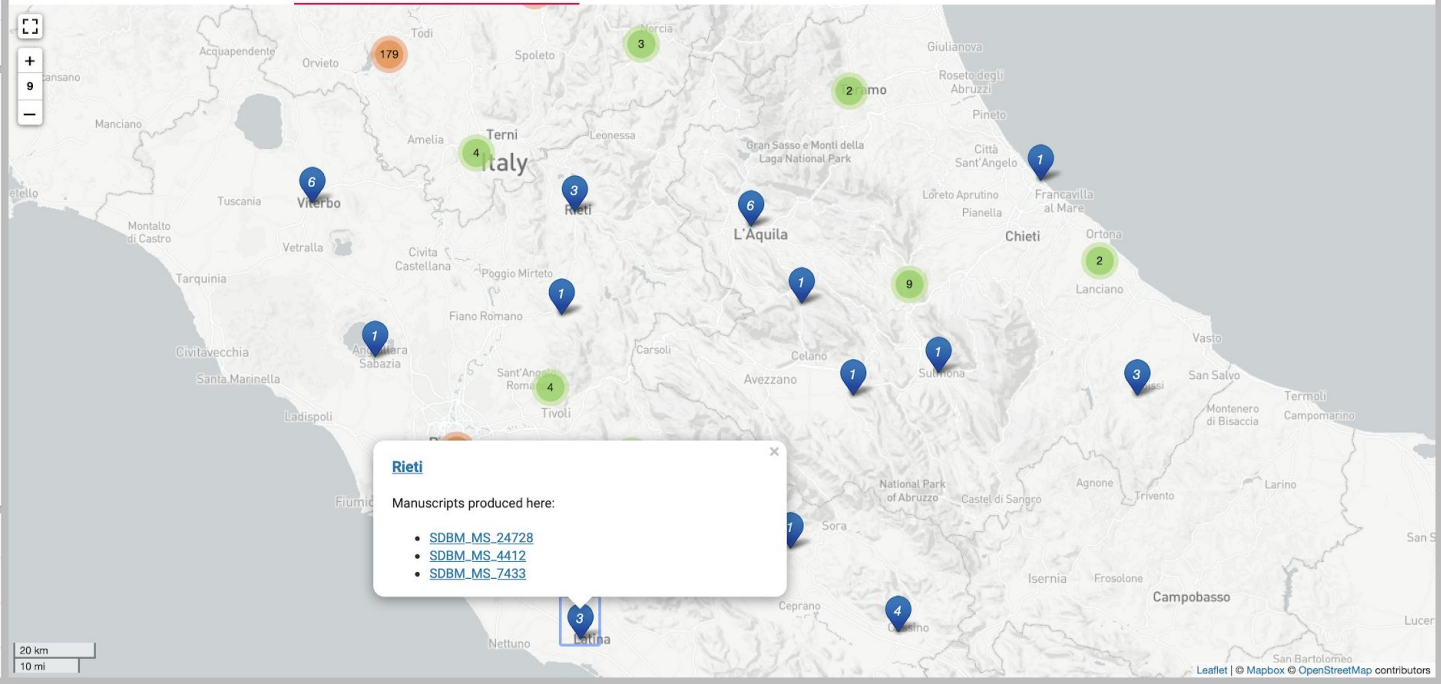
Work

Production place

Production date

Note

TABLE | PRODUCTION PLACES | LAST KNOWN LOCATIONS | MIGRATIONS | EXPORT



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- **EXPORT** the SPARQL query used to generate the result table view into YASGUI query editor.

Results: 222602 manuscripts

Narrow down by:

Label

Search

Author

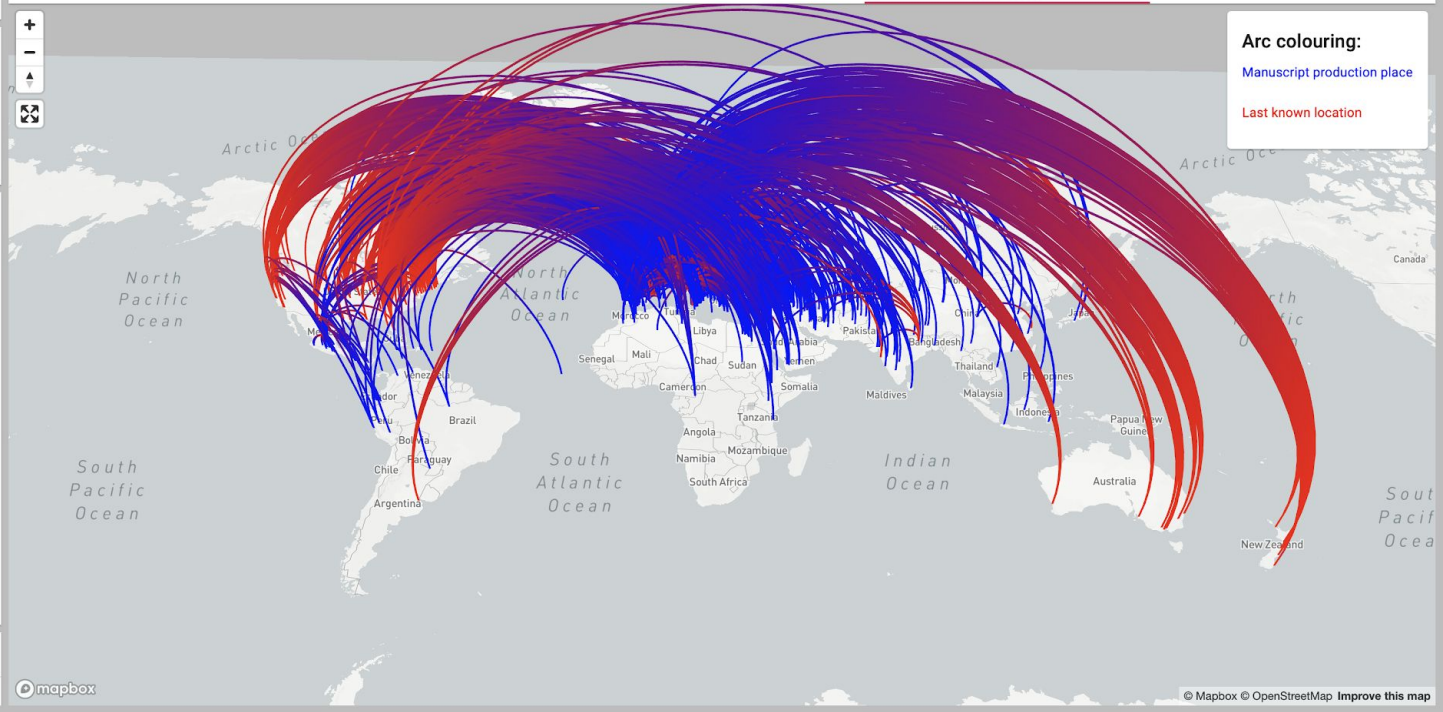
Search...

- [ ] Unknown [136012]
- [ ] Augustine, Saint, Bishop of Hippo [4661]
- [ ] Jerome, Saint, -419 or 420 [3245]
- [ ] Cicero, Marcus Tullius [2575]
- [ ] Anonymous [2327]
- [ ] Aristotle [2029]
- [ ] Gregory, I, Pope, approximately 540-604 [1980]
- [ ] Bernard, of Clairvaux, Saint, 1090 or 1091-1153 [1864]
- [ ] John Chrysostom, Saint, -407 [1748]
- [ ] Aquinas, Thomas, Saint, 1225-1274 [1477]

Work

Production place

TABLE | PRODUCTION PLACES | LAST KNOWN LOCATIONS | MIGRATIONS | EXPORT



Events

Use this perspective to access data related to events associated with the histories of manuscripts and manuscript collections over the centuries. See instructions for using the filters. The result view can be selected using the tabs:

- **TABLE** view includes all events in the MMM data.
- **MAP** view visualizes the events that have location information on a map.
- **EXPORT** the SPARQL query used to generate the result table view into YASGUI query editor.

Results: 937158 events

Narrow down by:

Type
- E10 Transfer of Custody [40074]
- E12 Production [226402]
- Manuscript related activity [670682]

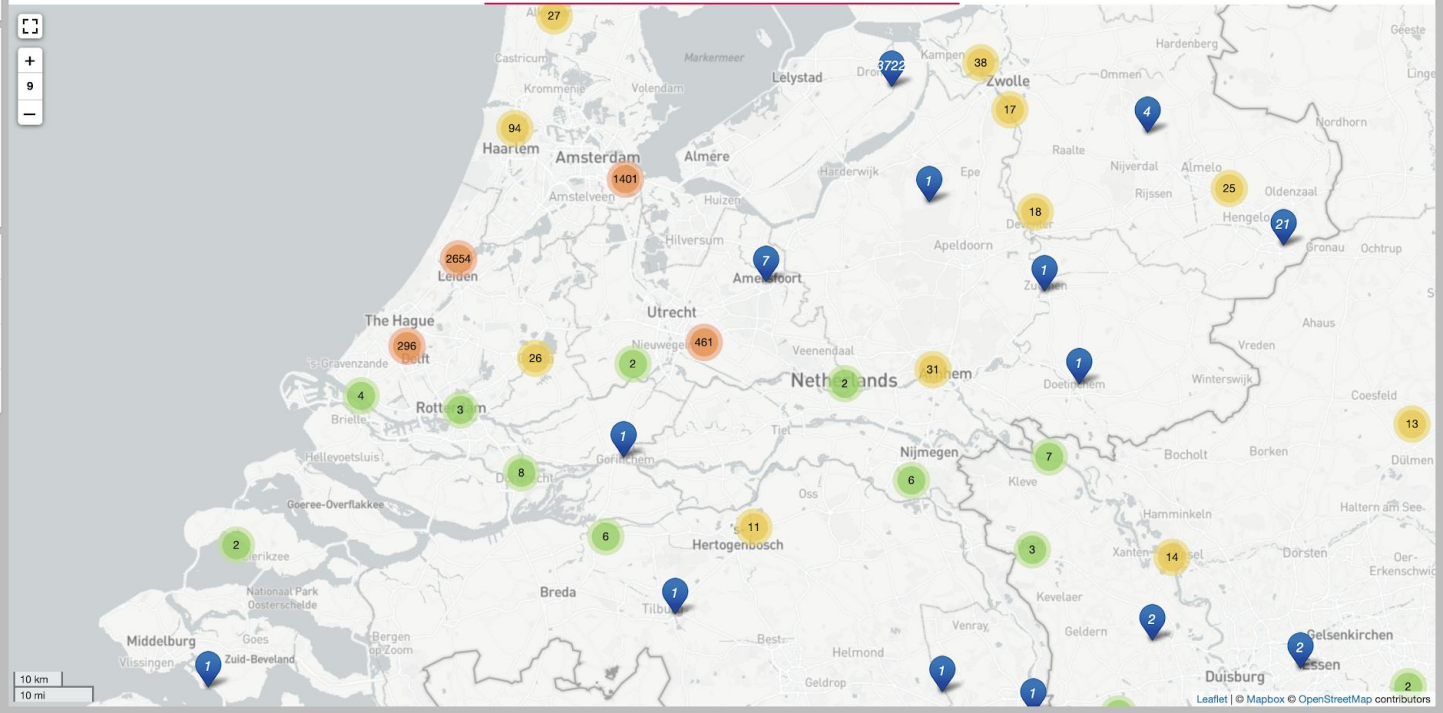
Manuscript / Collection

Date

Place

Source

TABLE MAP EXPORT



Actors

This perspective provides access to data related to the persons and institutions who impacted the production or dissemination of manuscripts and works. Actors include authors of works, artists and scribes who produced manuscripts, and the individual owners and institutions who bought or sold manuscripts. If two or more source datasets include the same Actor and this has been verified, the information from the source datasets has been merged into one Actor. See instructions for using the filters. The result view can be selected using the tabs:

- **TABLE** view includes all Actors in the MMM data.
- **MAP** view visualizes the connection between Actors and the places where they lived or were located.
- **EXPORT** the SPARQL query used to generate the result table view into YASGUI query editor.

Results: 56685 actors

Narrow down by:

Name

Search

Type

Birth / formation date

Death / dissolution date

Activity location

Search...

- Unknown [43797]
- World [15254]
  - Abbasid Caliphate [16]
  - Africa [139]
  - Asia [548]
  - Byzantine Empire [124]
  - Europe [13128]
  - Holy Roman Empire [19]
  - North and Central America [1161]

TABLE MAP EXPORT

http://ldf.fi/mmm/sparql

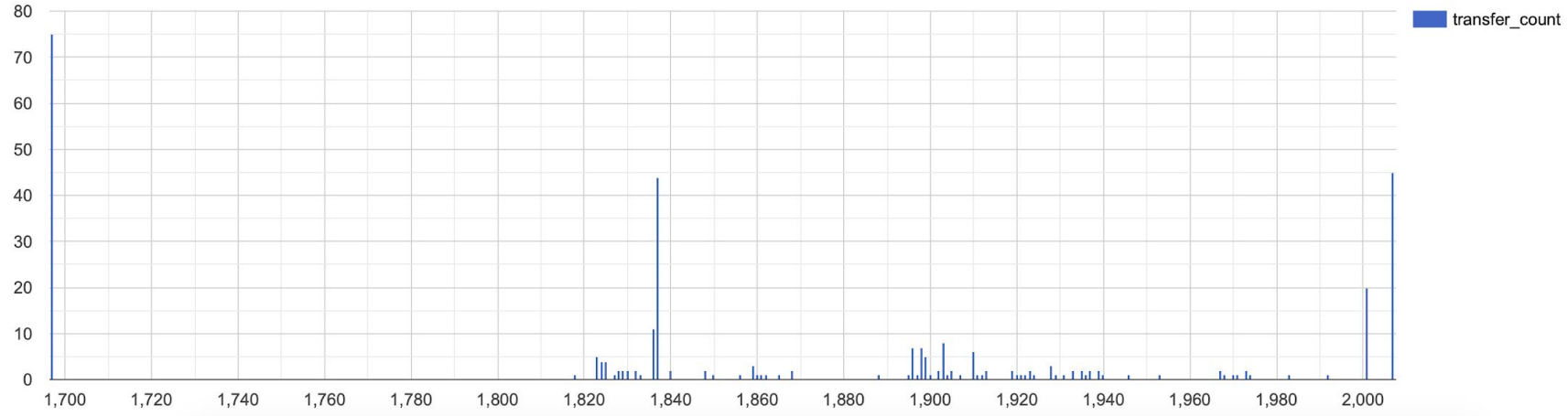
```
SELECT ?transfer_year (COUNT (*) AS ?transfer_count) WHERE {
  ?transfer ecrm:P4_has_time-span ?transfer_timespan ;
            ecrm:P70i_is_documented_in ?source .
  ?transfer_timespan  skos:prefLabel ?timespan_label ;
                      ecrm:P82a_begin_of_the_begin ?timespan_datetime .
  BIND(YEAR(?timespan_datetime) AS ?transfer_year)

  ?source skos:prefLabel ?source_title .

  ?transfer ecrm:P30_transferred_custody_of | mmms:observed_manuscript ?manuscript .
  ?manuscript dct:source <http://ldf.fi/schema/mmm/Bodley> .
  ?manuscript a efrbroo:F4_Manifestation_Singleton ;
              skos:prefLabel ?manuscript_name .

} GROUP BY ?transfer_year
ORDER BY ?transfer_year
```

Table | Response | Gallery | Chart | Geo | Geo-3D | Geo events | Pivot | Timeline | 66 results in 17.439 seconds | Configure



Mapping Manuscript Migrations

MMM Portal: https://mappingmanuscriptmigrations.org/

More information at: http://blog.mappingmanuscriptmigrations.org/

Twitter: @MSMigrations

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