

Conservation & Digitization

❧ A Technologizing of the Book as an Object ❧

Alberto Campagnolo, PhD

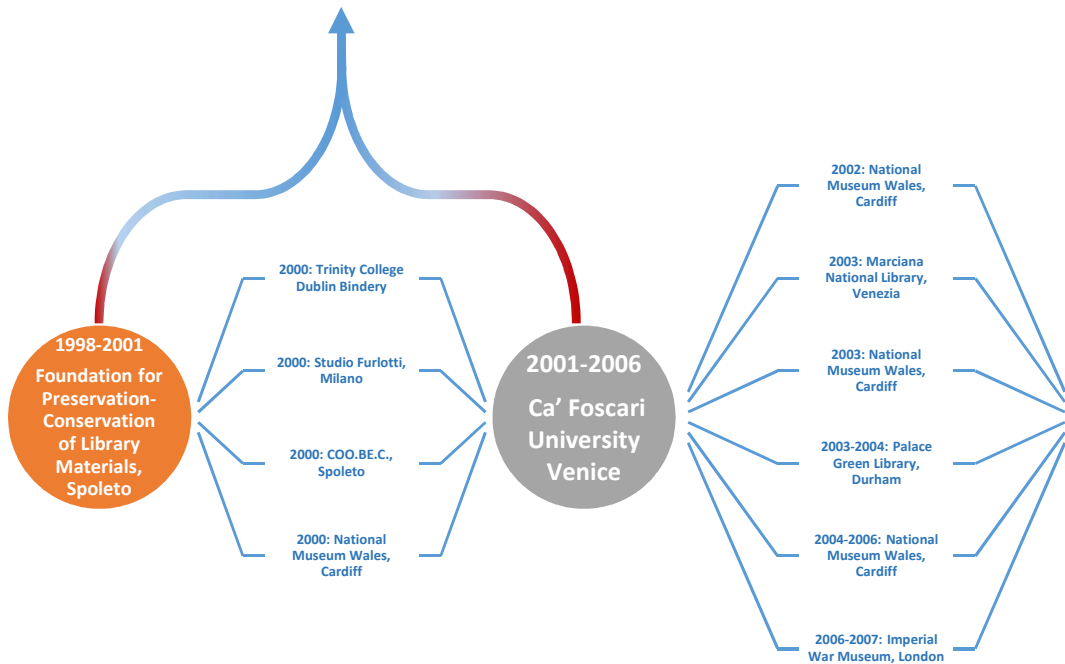
CLIR/DLF Postdoctoral Fellow in Data Curation in Medieval Studies
Preservation Research and Testing Division, Library of Congress
Digital Medievalist Director

alberto.campagnolo@gmail.com

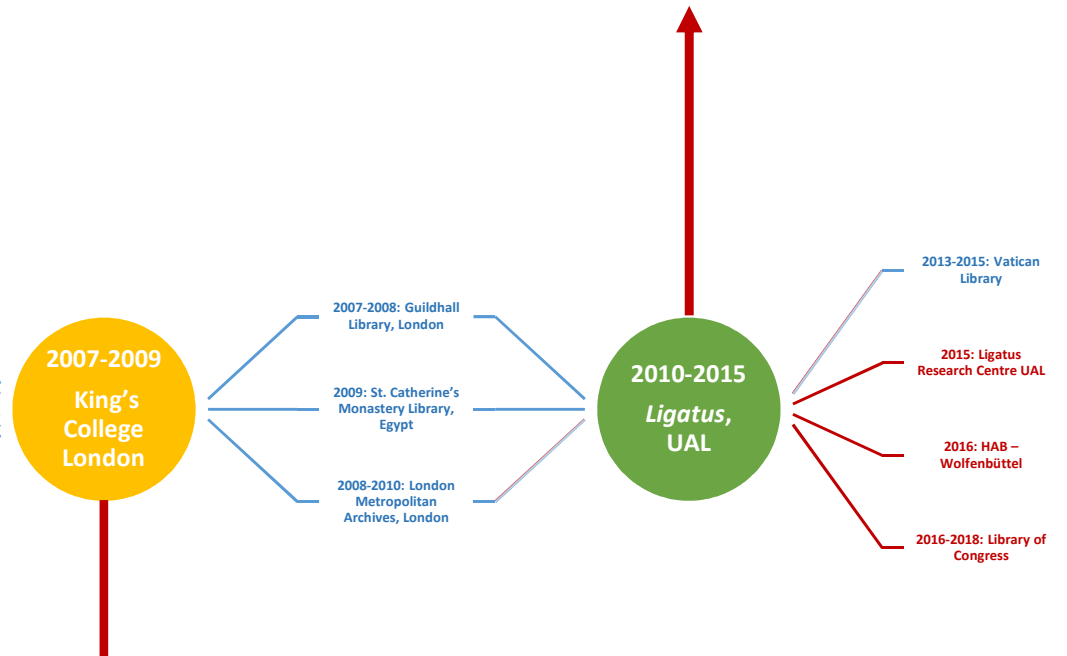
 [@acampagnolo](https://twitter.com/acampagnolo)

MITH — Digital Dialogues
1st November 2016

DipHE – BA (Hons.): Conservation of Library & Archive Materials



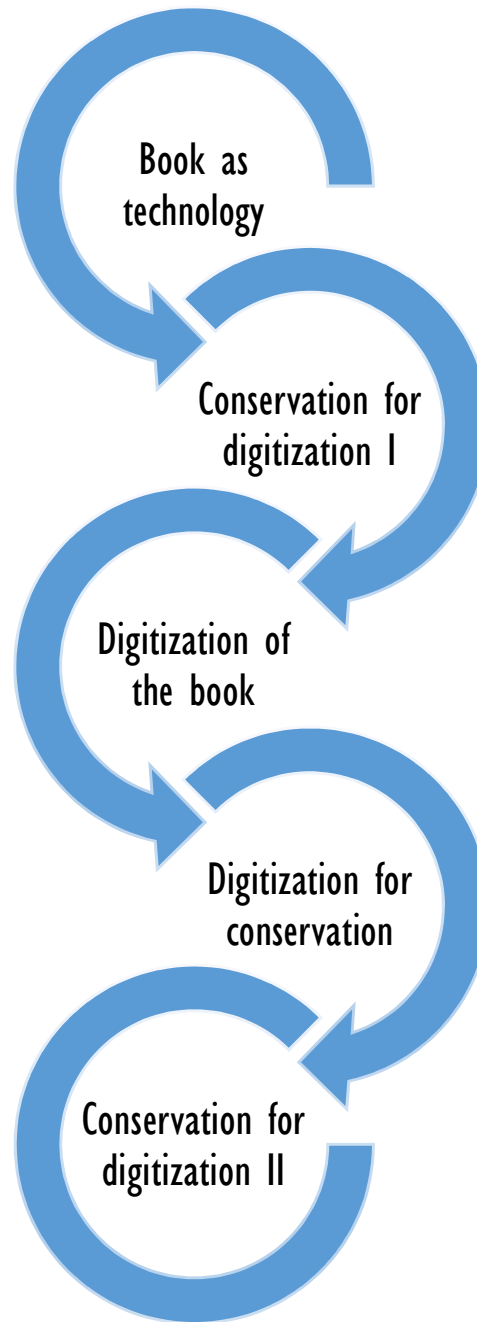
PhD: *Transforming structured descriptions to visual representations. An automated visualization of historical bookbinding structures.*



CONSERVATION

DIGITAL HUMANITIES

**MA: Digital Culture
and Technology**

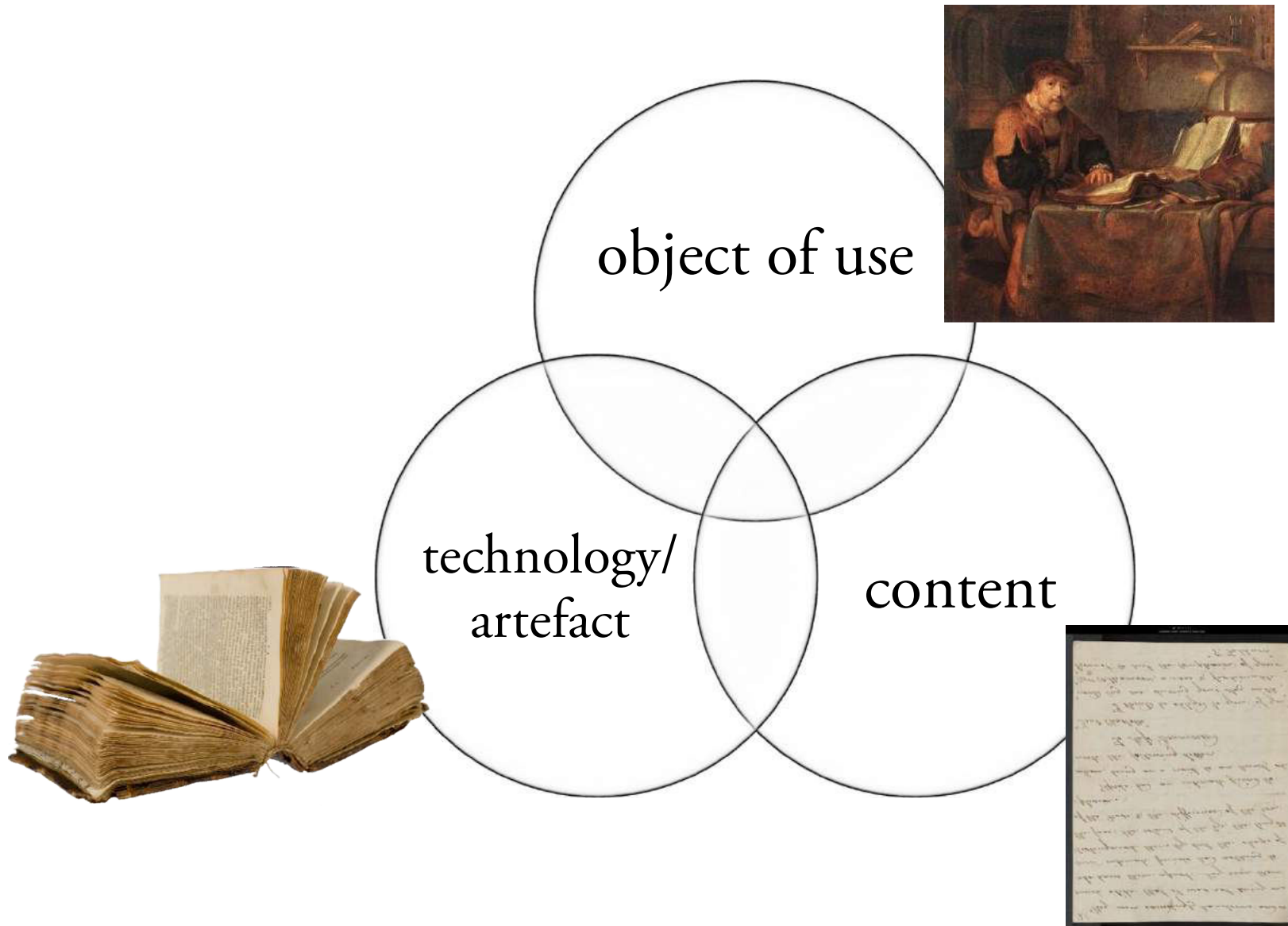


the Book is a Technology





Book seen as...



Book seen as...

**TURNING
THE PAGES™**



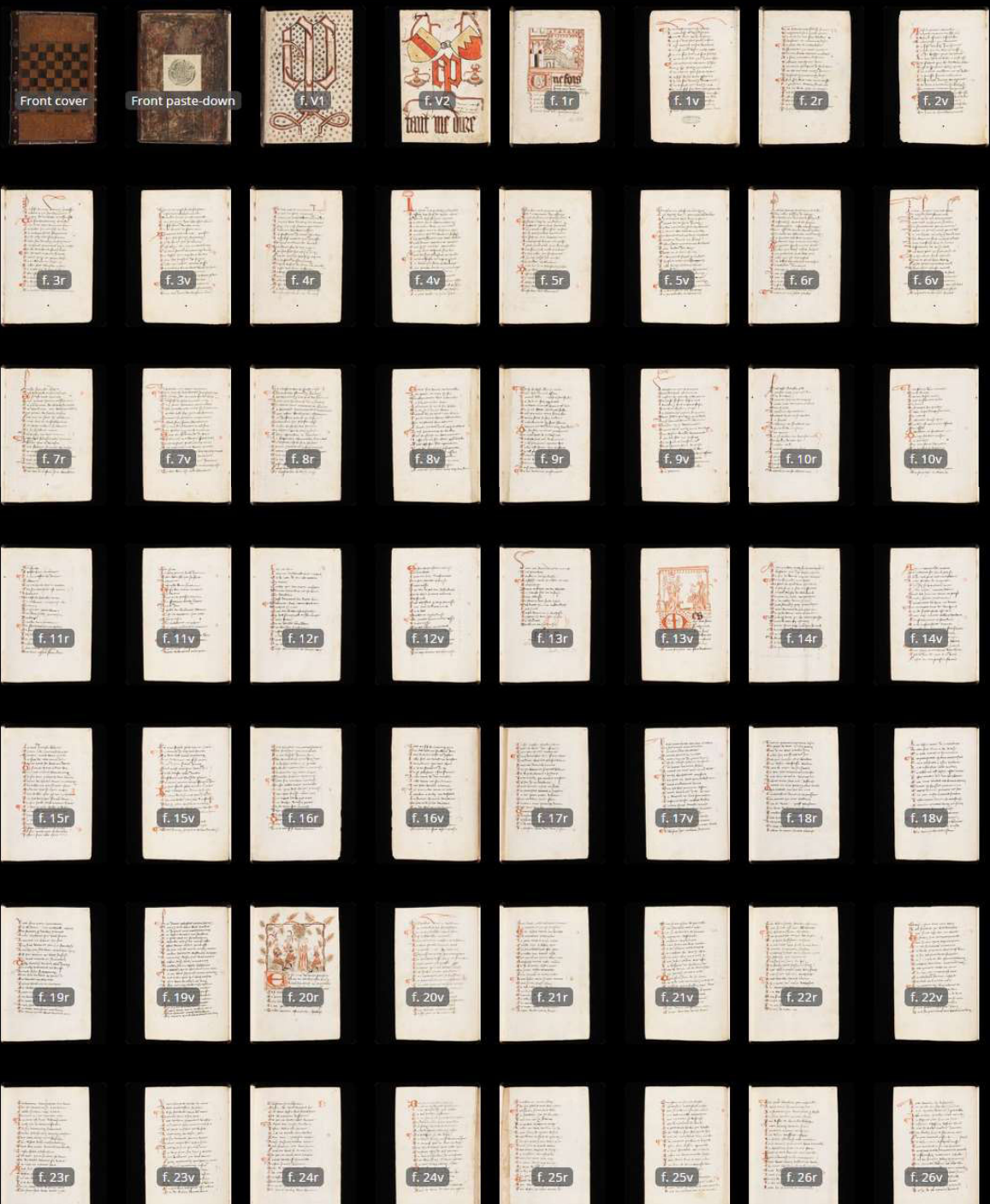
object of use

technology/
artefact

content







Basic Information How to quote Rights

Description

Lausanne, Bibliothèque cantonale et universitaire de Lausanne, Ms 350
Paper · 181 ff. · 22 x 14.5 cm · about 1430
Othon de Grandson, Les Responses des cent Balades

[Go to Overview Page](#)

Language: French

Manuscript Summary: Othon de Grandson, knight and poet, distinguished himself both through his verses and through his heroic deeds during the Hundred Years War. He was an adviser to Count Amadeus VII of Savoy. After the death of the count, he fled to England. After his return to the land of Vaud he died in an ordeal by battle in the form of a duel in Bourg-en-Bresse in the year 1397. Othon de Grandson probably wrote his poetic works between 1366 and 1372. This collection volume also contains ballads by thirteen different authors. *(swe)*

Standard description: Notice codicologique de Simon Schwery, Bibliothèque cantonale et universitaire de Lausanne, 2010.
[Show standard description](#)

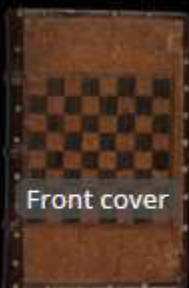
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Additional Views

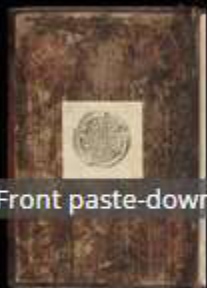
Explore Object



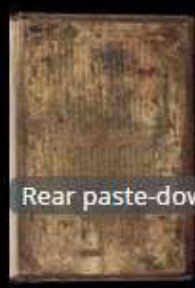
ART
THE
WALTERS
MUSEUM



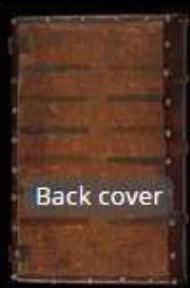
Front cover



Front paste-down



Rear paste-down



Back cover



Spine



Fore edge



Head



Tail

e-codices

piatto.anteriore



risguardia.anteriore



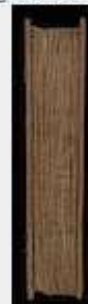
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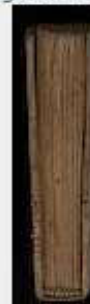
dorso



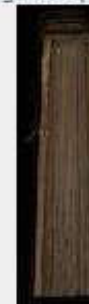
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taglio.inferiore



taglio.superiore

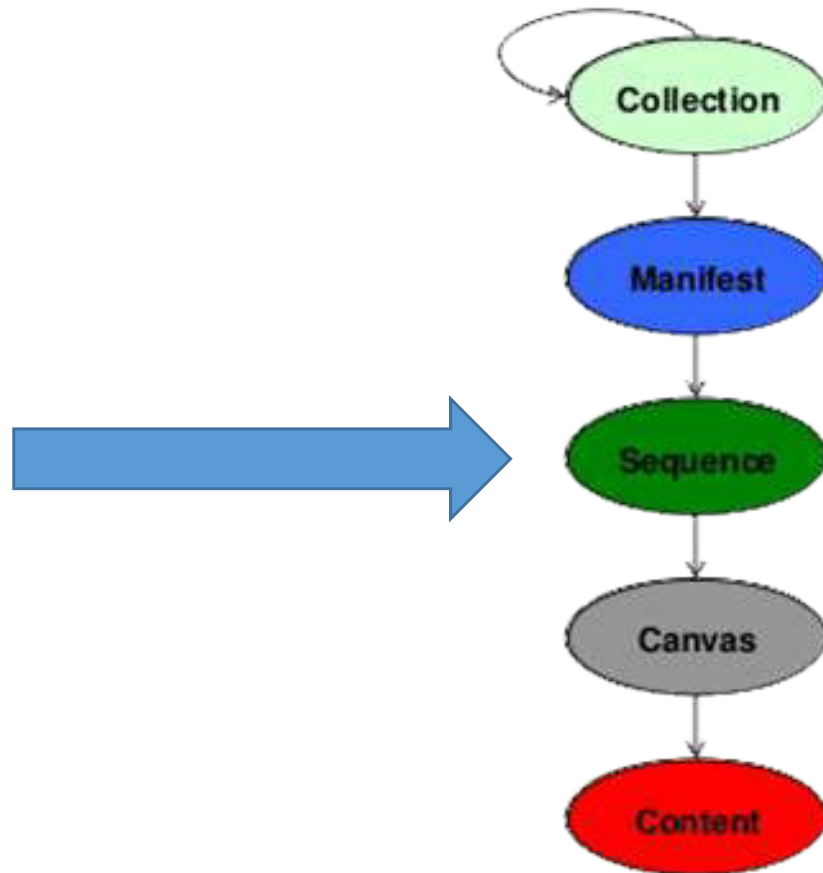


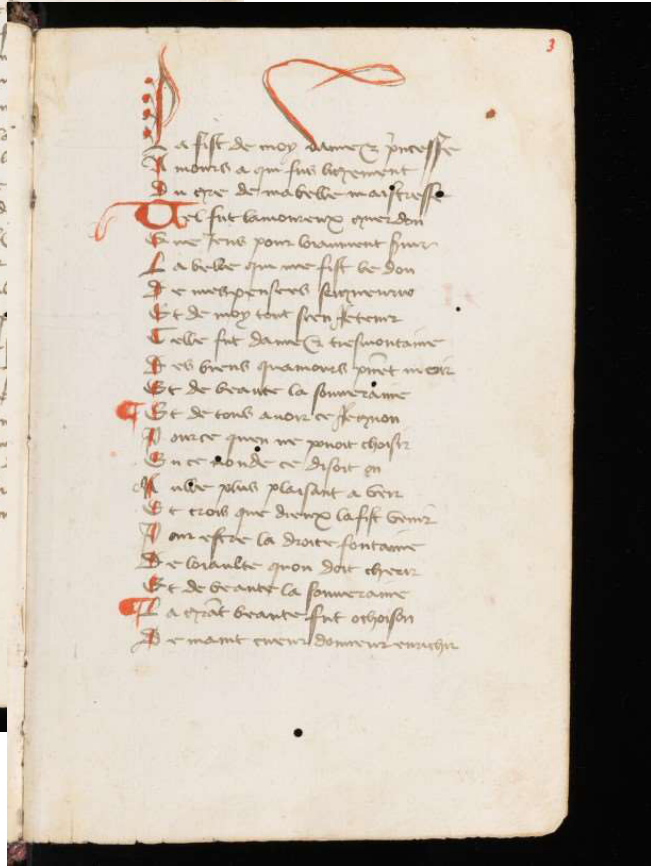
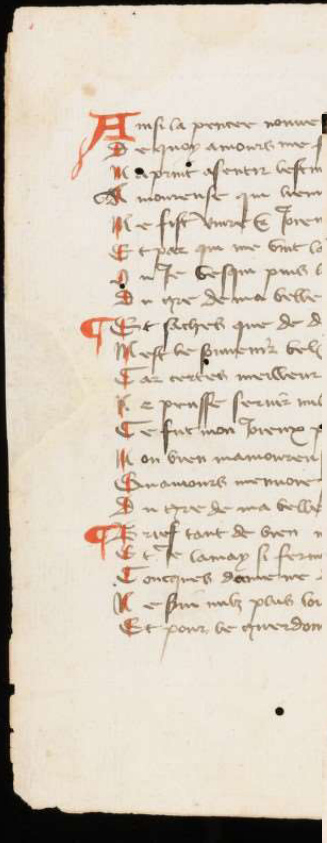
piatto.posteriore



Biblioteca Apostolica Vaticana

Presentation API Structure



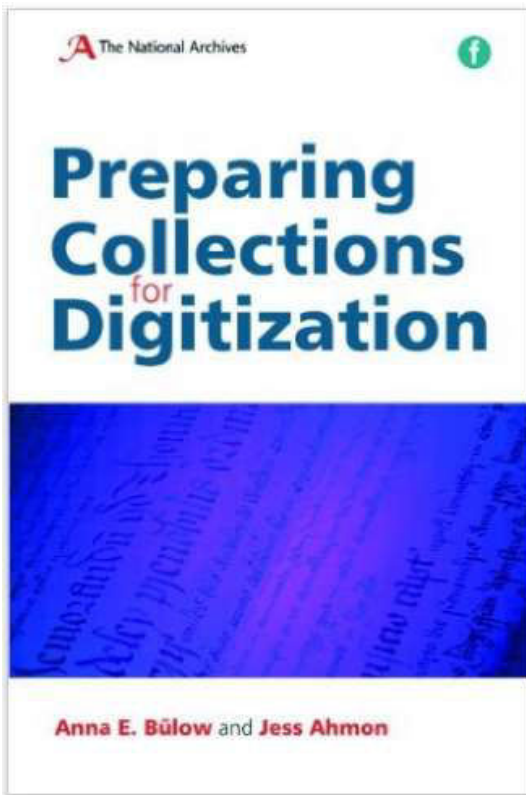


Lausanne, Bibliothèque cantonale et universitaire de Lausanne / Ms 350 / ff. 1r-3r(www.e-codices.unifr.ch).

Conservation for Digitization



FIGURE 4



Stage One

- Proposal, evaluation, selection
- Resource enhancement
- Copyright clearance
- Partnering (commercial or academic)
- Condition assessment
- Preparation for scanning
- Project planning

Stage Two

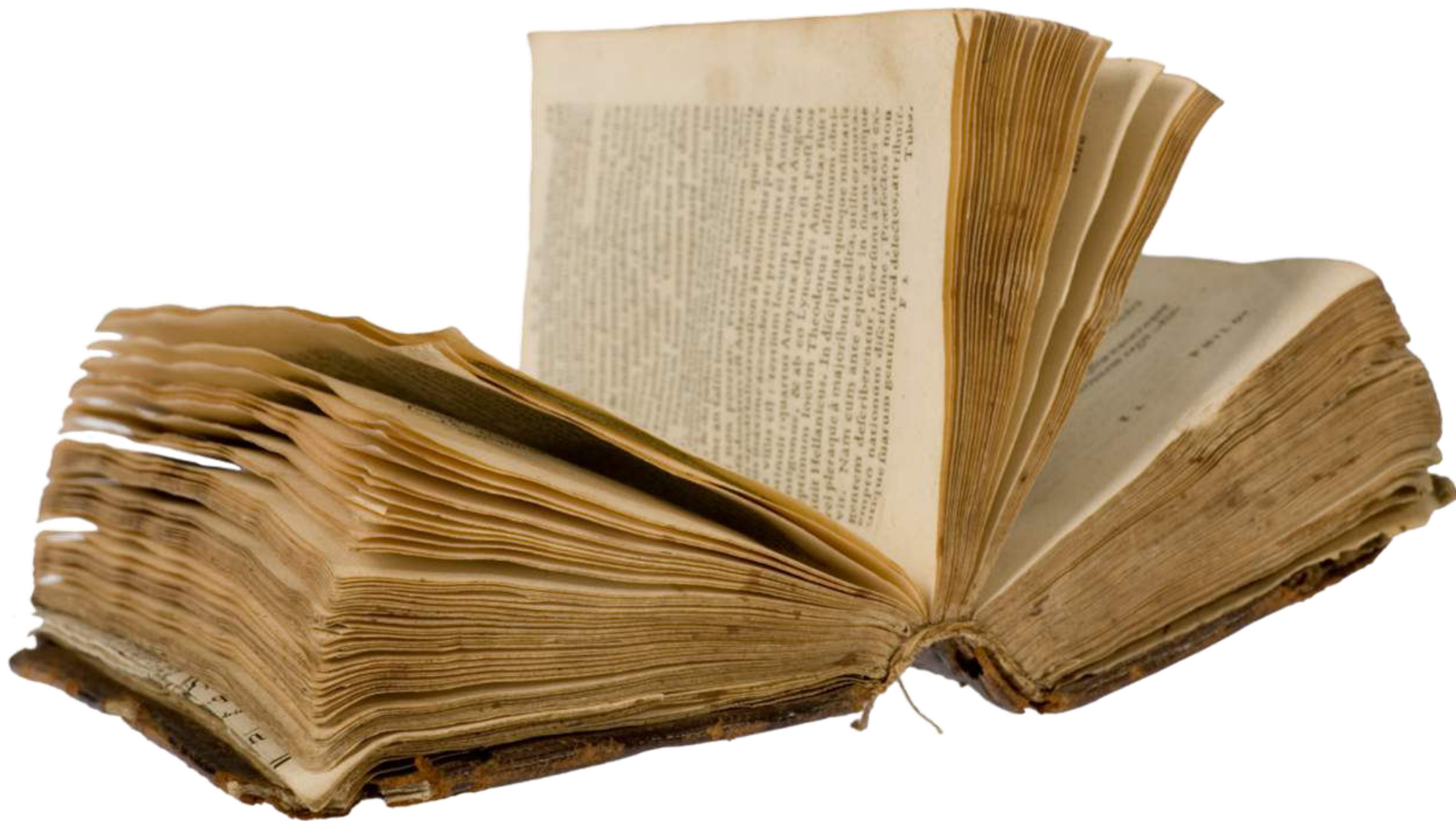
- Imaging
- Quality assurance
- Transcription
- Structural metadata
- File management

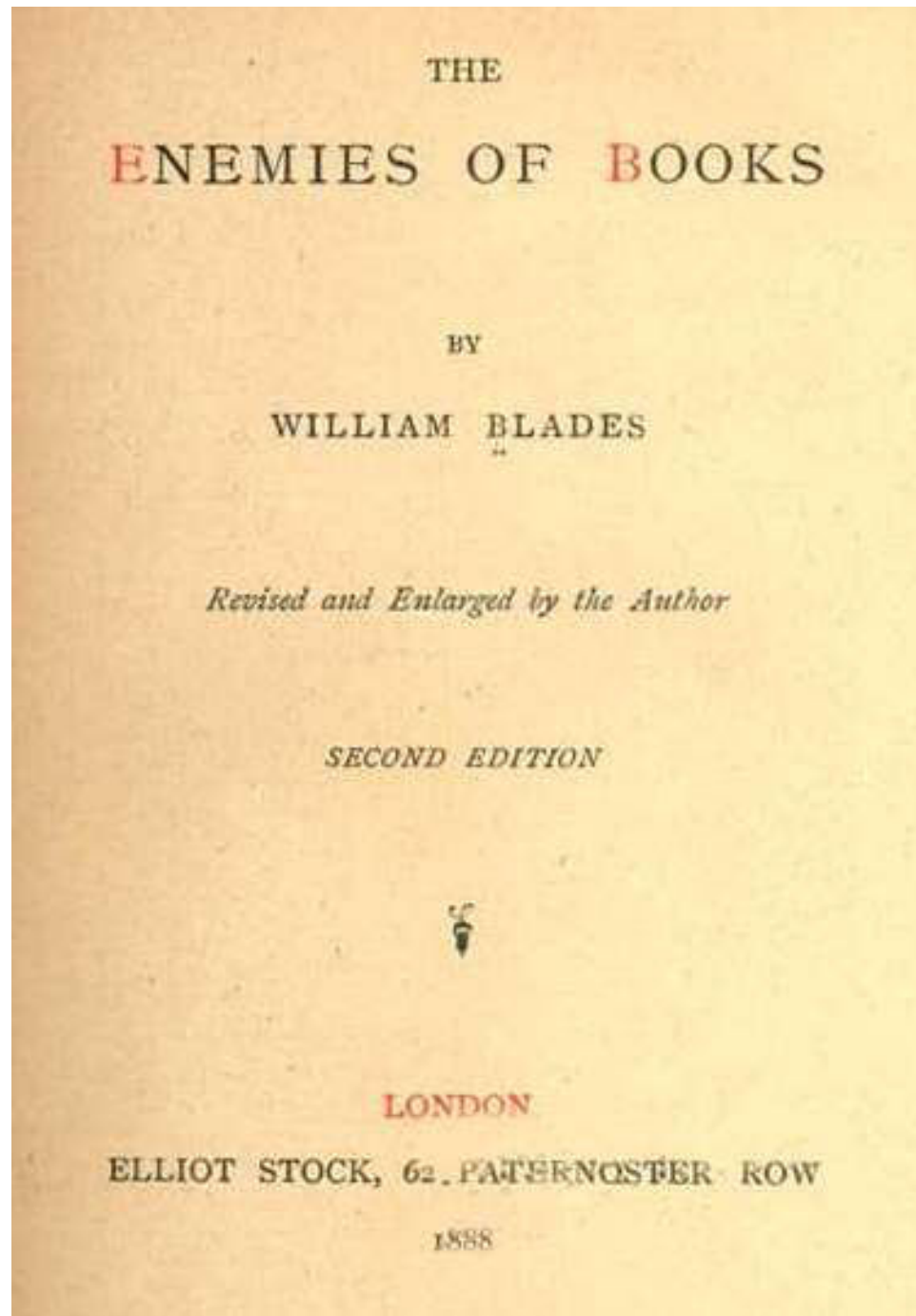
Stage Three

- Creation of database
- Delivery (hosting)
- Marketing
- User evaluation

Stage Four – Long-term sustainability

Figure 1.2 *The four phases of digitization*





CONTENTS

- I. FIRE.
 - II. WATER.
 - III. GAS AND HEAT.
 - IV. DUST AND NEGLECT.
 - V. IGNORANCE AND BIGOTRY.
 - VI. THE BOOKWORM.
 - VII. OTHER VERMIN.
 - VIII. **BOOKBINDERS.**
 - IX. **COLLECTORS.**
 - X. **SERVANTS AND CHILDREN.**
- POSTSCRIPTUM.
- CONCLUSION.

VIII. BOOKBINDERS (OR BOOK CONSERVATORS).

A good binding gives pleasure. — Deadly effects of the “plough” as used by binders. — Not confined to bye-gone times. — Instances of injury. — De Rome, a good binder but a great cropper. — Books “hacked.” — Bad lettering. — Treasures in book-covers. — Books washed, sized, and mended. — “Cases” often preferable to re-binding.

IX. COLLECTORS.

Bagford the biblioclast. — Illustrations torn from MSS. — Title-pages torn from books. — Rubens, his engraved titles. — Colophons torn out of books. — Lincoln Cathedral. — Dr. Dibdin’s Nosegay. — Theurdanck. — Fragments of MSS. — Some libraries almost useless. — Pepysian. — Teylerian. — Sir Thomas Phillipps.

X. SERVANTS AND CHILDREN.

Library invaded for the purpose of dusting. — Spring clean. — Dust to be got rid of. — Ways of doing so. — Carefulness praised. — Bad nature of certain books — Metal clasps and rivets. — How to dust. — Children often injure books. — Examples. — Story of boys in a country library.



©INSTITUTE FOR ANTIQUITY AND CHRISTIANITY IN CLAREMONT, CA, USA

**The Nag Hammadi Codices.
13 leather-bound single-quire papyrus volumes discovered by Egyptian farmers in 1945.
Dated mid-fourth century A.D.**

Are we Digitizing the Book as an Object?







What
do we lose
when we lose
a library?



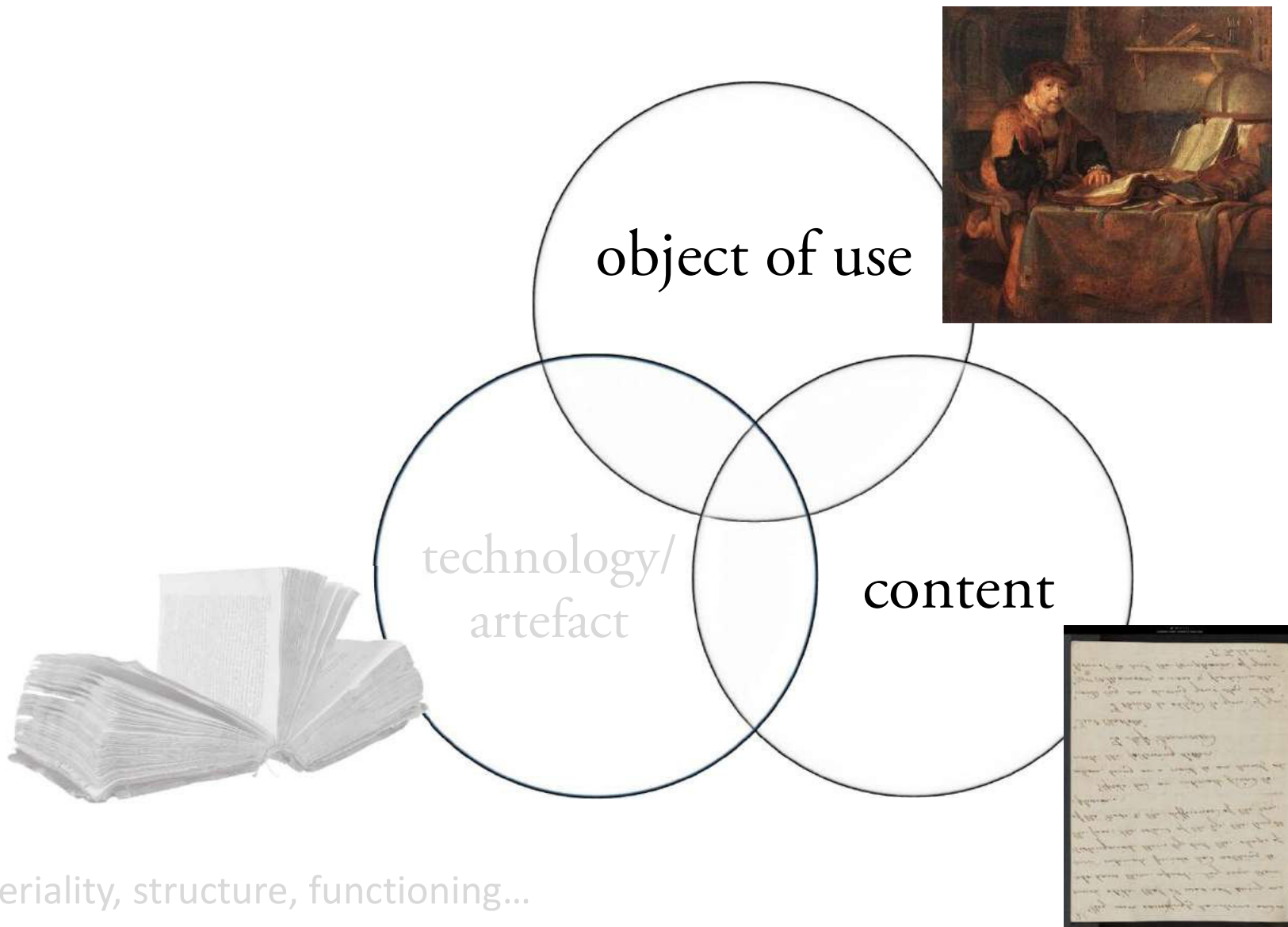
Proceedings of the conference
held at the KU Leuven 9-11 September 2015

Conference organized by
KU Leuven · UC Louvain
the Goethe Institut · the British Council

	Egyptian Scientific Institute	Cairo	Egypt	2011-12-?? AD		A first estimate says that only 30,000 volumes have been saved of a total of 200,000. ^[41]
	Ahmed Baba Institute (Timbuktu library)	Timbuktu	Mali	2013-01-28 AD	Islamists militia	The library was burned down, it contained over 20,000 manuscripts with only a fraction of them having been scanned as of January 2013. ^{[42][43][44]}
	Libraries of Fisheries and Oceans Canada		Canada	2013 AD	Government of Canada headed by prime minister Stephen Harper	Digitization effort to reduce the nine original libraries to seven and save \$C443,000 annual cost. ^[45] Only 5–6% of the material was digitized, and that scientific records and research created at a taxpayer cost of tens of millions of dollars was dumped, burned, and given away. ^[46] Particularly noted are baseline data important to ecological research, and data from 19th century exploration.
	Saeh Library	Tripoli	Lebanon	2014-01-03 AD	Unknown	The Christian library was burned down, it contained over 80,000 manuscripts and books. ^{[47][48][49][50]}
	National Archives of Bosnia and Herzegovina (partially)	Sarajevo	Bosnia and Herzegovina	2014-02-07 AD	Seven Bosnian rioters suspected of having started the fire; two (Salem Hatibović and Nihad Trnka) ^[51] were arrested. ^[52] On 4 April 2014, Salem Hatibović and Nihad Trnka were released (although still under suspicion of terrorism), on conditions that they don't leave their places of residence and abstain from having any contact with each other. Both were also mandated to report to the police once every week. ^[51]	During the 2014 unrest in Bosnia and Herzegovina large amounts of historical documents were destroyed when sections of the Archives of Bosnia and Herzegovina, housed in the presidential building, were set on fire. Among the lost archival material were documents and gifts from the Ottoman period, original documents from the 1878-1918 Austro-Hungarian rule in Bosnia and Herzegovina, as well as documentations of the interwar period, the 1941-1945 rule of the Independent State of Croatia, papers from the following years, and about 15000 files from the 1996-2003 Human Rights Chamber for Bosnia and Herzegovina. ^{[53][54]} In the repositories that were burnt, about 60 percent of the material was lost, according to estimates by Šaban Zahirović, the head of the Archives. ^[55]
	Mosul University libraries and private Libraries	Mosul	Iraq	2014-12-?? AD	Ongoing ISIS Book Burning	Book burning. ^[56]
	Libraries in Anbar Province	Anbar Province	Iraq	2014-12-?? AD	Ongoing ISIS Book Burning	Book burning. ^[56]
	Institute of Scientific Information on Social Sciences (INION) (partially?)	Moscow	Russia	2015-01-29 AD	Unknown.	Fire spread to 2000sqm in third Floor. Roof caved in. Additional water damage. Ambient temperature too high for self-freezing of damaged Works. Library contains 14 million books, including rare texts in ancient Slavic languages, documents from the League of Nations, UNESCO, and parliamentary reports from countries including the US dating back as far as 1789. ^[57]
	Mosul public library (Central Public Library in Ninawa)	Mosul	Iraq	2015-02-?? AD	ISIS Book Burning	8,000 rare old books and manuscripts. Manuscripts from the eighteenth century, Syriac books printed in Iraq's first printing house in the nineteenth century, books from the Ottoman era, Iraqi newspapers from the early twentieth century. ^[58]

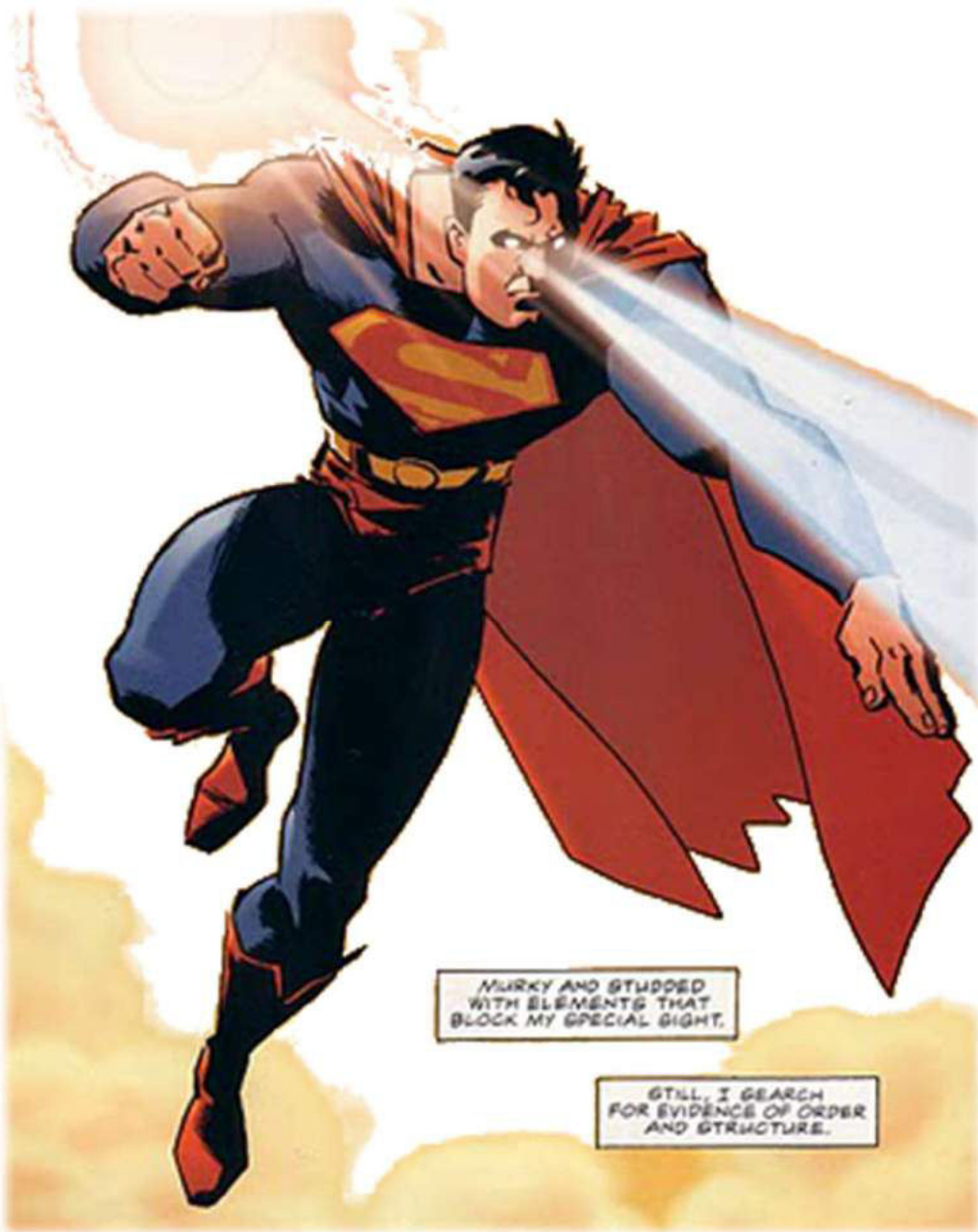
Natural disasters [edit]

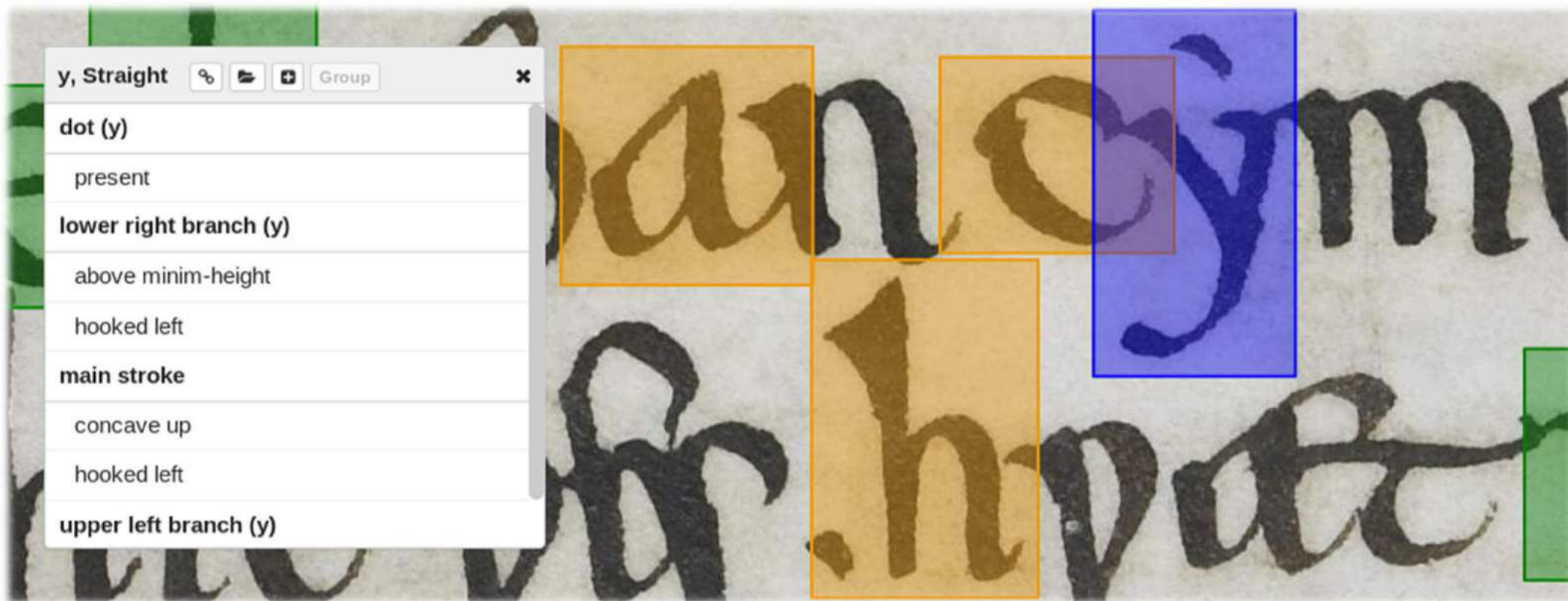
Image ↕	Name of Library ↕	City ↕	Country ↕	Date of Destruction ↕	Causes and/or Account of Destruction ↕
					



Digitization for Conservation:

can the digital help understand &
communicate materiality?





http://www.digipal.eu/digipal/page/59/?vector_id=OpenLayers.Feature.Vector_1503

LED Illumination Sequence

Ultra-Violet

NON-Visible

• 365 nm

• 445 nm

• 470 nm

• 505 nm

• 530 nm

• 570 nm

• 617 nm

• 625 nm

• 700 nm

• 735 nm

• 780 nm

• 870 nm

• 940 nm

• 1040 nm

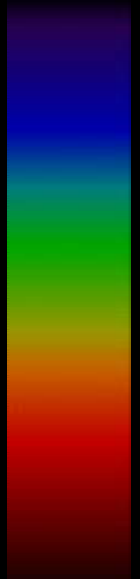
Visible

Infrared

NON- Visible

• 445 nm raking

• 910 nm raking



Transforming structured descriptions to visual representations. An automated visualization of historical bookbinding structures.

[Advanced Search](#)

[Campagnolo, Alberto](#) (2015) *Transforming structured descriptions to visual representations. An automated visualization of historical bookbinding structures.* PhD thesis, University of the Arts London.

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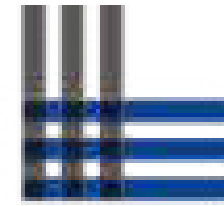
[UAL Research Management](#)

[Scholarly Communications](#)

Documents	Details
Type of Research: Thesis	
Creators: Campagnolo, Alberto	
Description:	
<p>In cultural heritage, the documentation of artefacts can be both iconographic and textual, i.e. both pictures and drawings on the one hand, and text and words on the other are used for documentation purposes.</p> <p>This research project aims to produce a methodology to transform automatically verbal descriptions of material objects, with a focus on bookbinding structures, into standardized and scholarly-sound visual representations.</p> <p>In the last few decades, the recording and management of documentation data about material objects, including bookbindings, has switched from paper-based archives to databases, but sketches and diagrams are a form of documentation still carried out mostly by hand. Diagrams hold some unique information, but often, also redundant information already secured through verbal means within the databases. This project proposes a methodology to harness verbal information stored within a database and automatically generate visual representations.</p> <p>A number of projects within the cultural heritage sector have applied semantic modelling to generate graphic outputs from verbal inputs. None of these has considered bookbindings and none of these relies on information already recorded within databases. Instead they develop an extra layer of modelling and typically gather more data, specifically for the purpose of generating a pictorial output. In these projects qualitative data (verbal input) is often mixed with quantitative data (measurements, scans, or other direct acquisition methods) to solve the problems of indeterminateness found in verbal descriptions. Also, none of these projects has attempted to develop a general methodology to ascertain the minimum amount of information that is required for successful verbal-to-visual transformations for material objects in other fields. This research has addressed these issues.</p> <p>The novel contributions of this research include: (i) a series of methodological recommendations for successful automated verbal-to-visual intersemiotic translations for material objects — and bookbinding structures in particular — which are possible when whole/part relationships, spatial configurations, the object's logical form, and its prototypical shapes are communicated; (ii) the production of intersemiotic transformations for the domain of bookbinding structures; (iii) design recommendations for the generation of standardized automated prototypical drawings of bookbinding structures; (iv) the application — never considered before — of uncertainty visualization to the field of the archaeology of the book. This research also proposes the use of automatically generated diagrams as data verification tools to help identify meaningless or wrong data, thus increasing data accuracy within databases.</p>	
Keywords/subjects not otherwise listed: markup languages	
Your affiliations with UAL: Colleges > Chelsea College of Arts Research Centres/Networks > LIGATUS Research Centre	
Date: 3 July 2015	
Funders: Arts and Humanities Research Council	
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Last Modified: 05 Apr 2016 05:09	
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LIGATUS



Research Centre, University of the Arts London



Professor Nicholas Pickwoad



St. Catherine's Monastery Library on Mount Sinai, Egypt Manuscript and Printed book Survey

Ligatus Research Centre Printed book Survey

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eXtensible Markup Language
(XML) schema

Electronic forms



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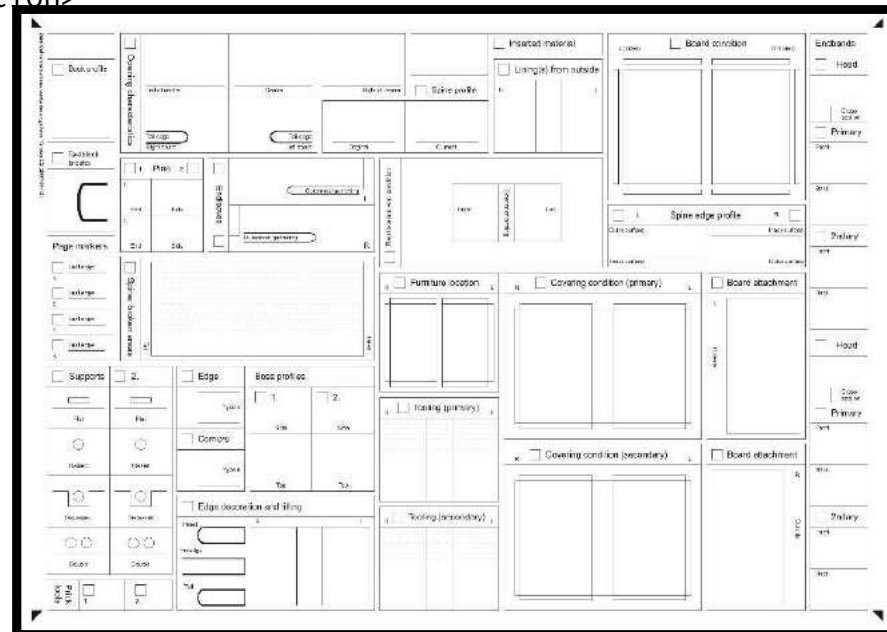


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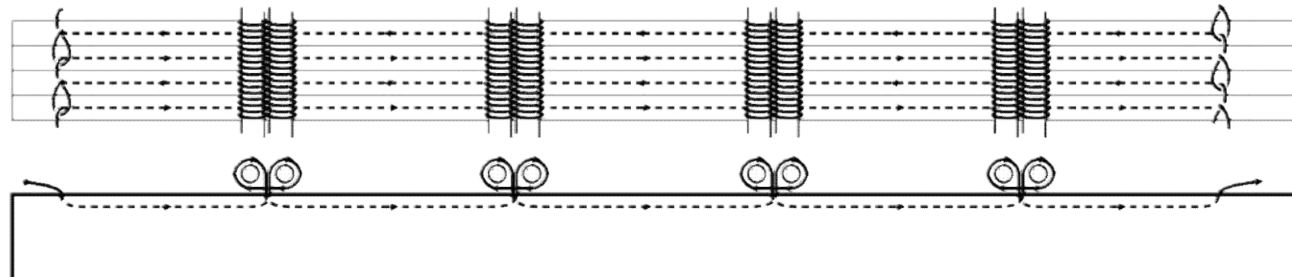




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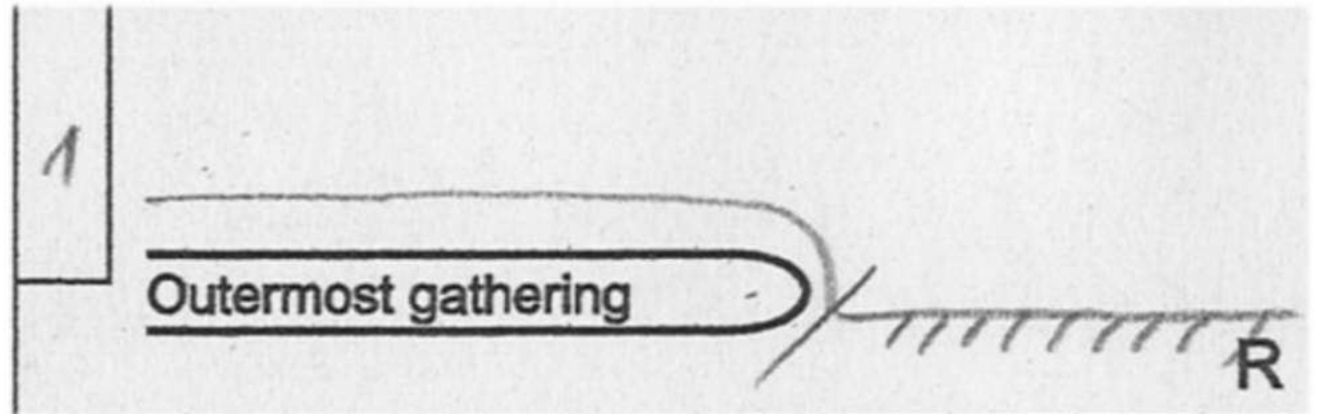


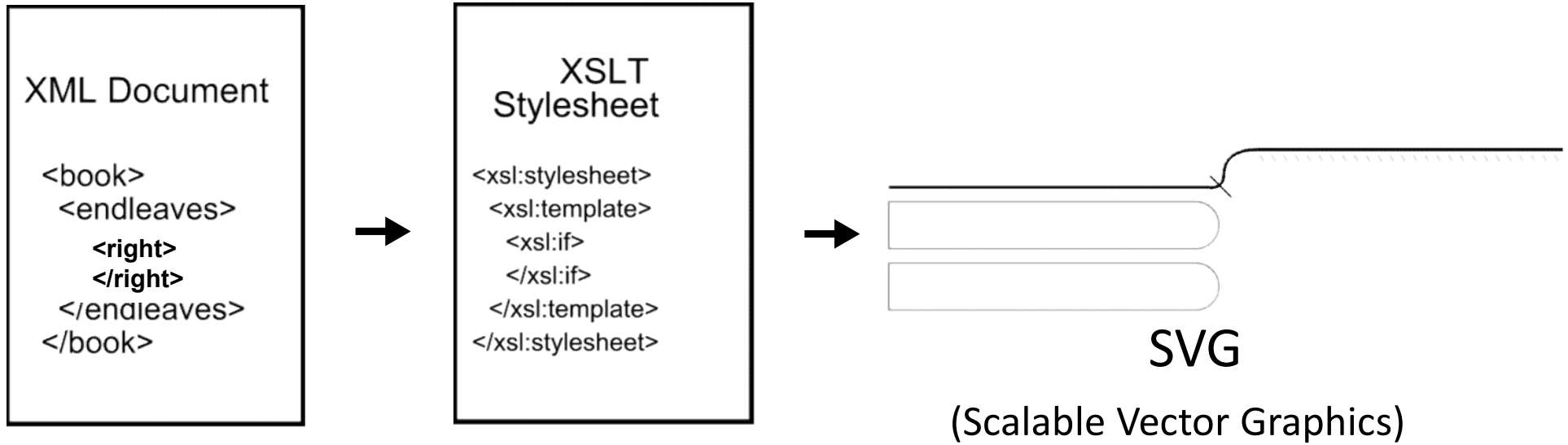


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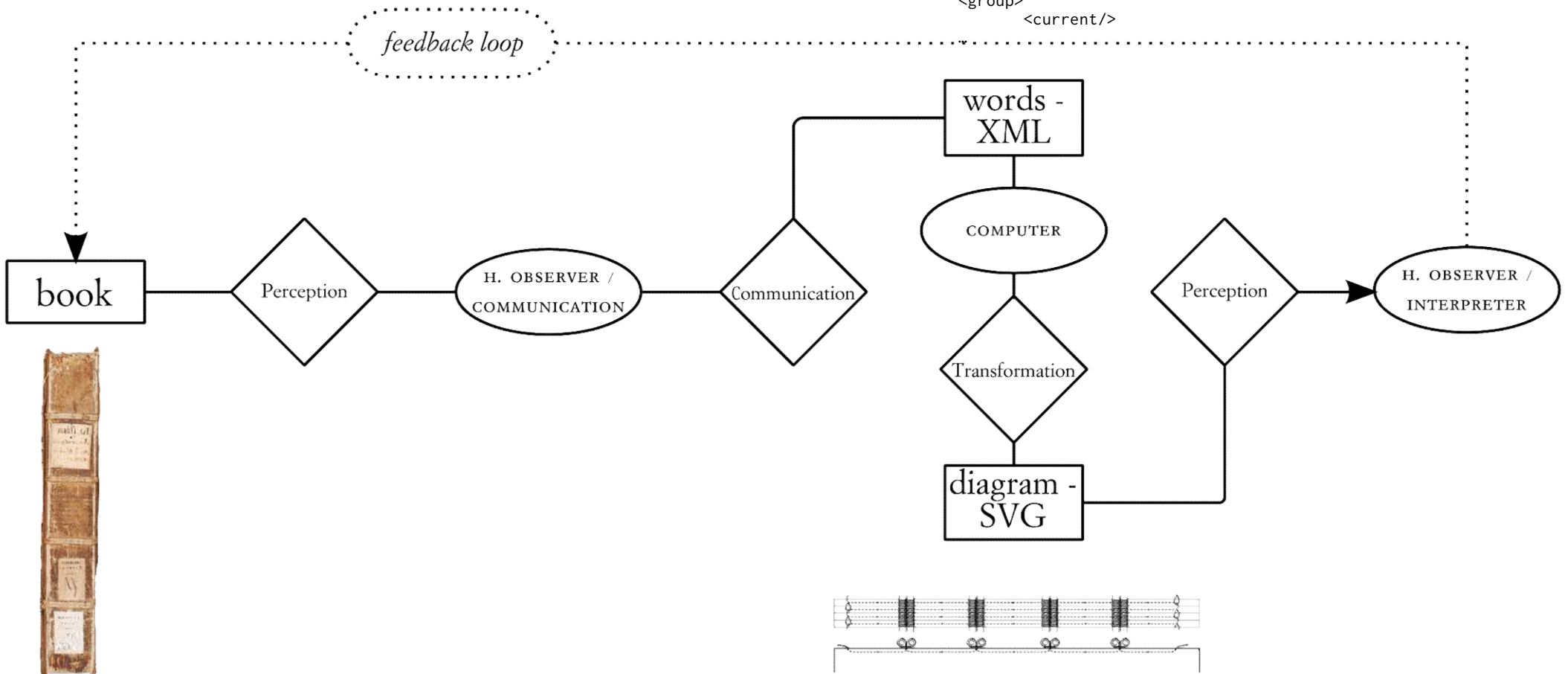




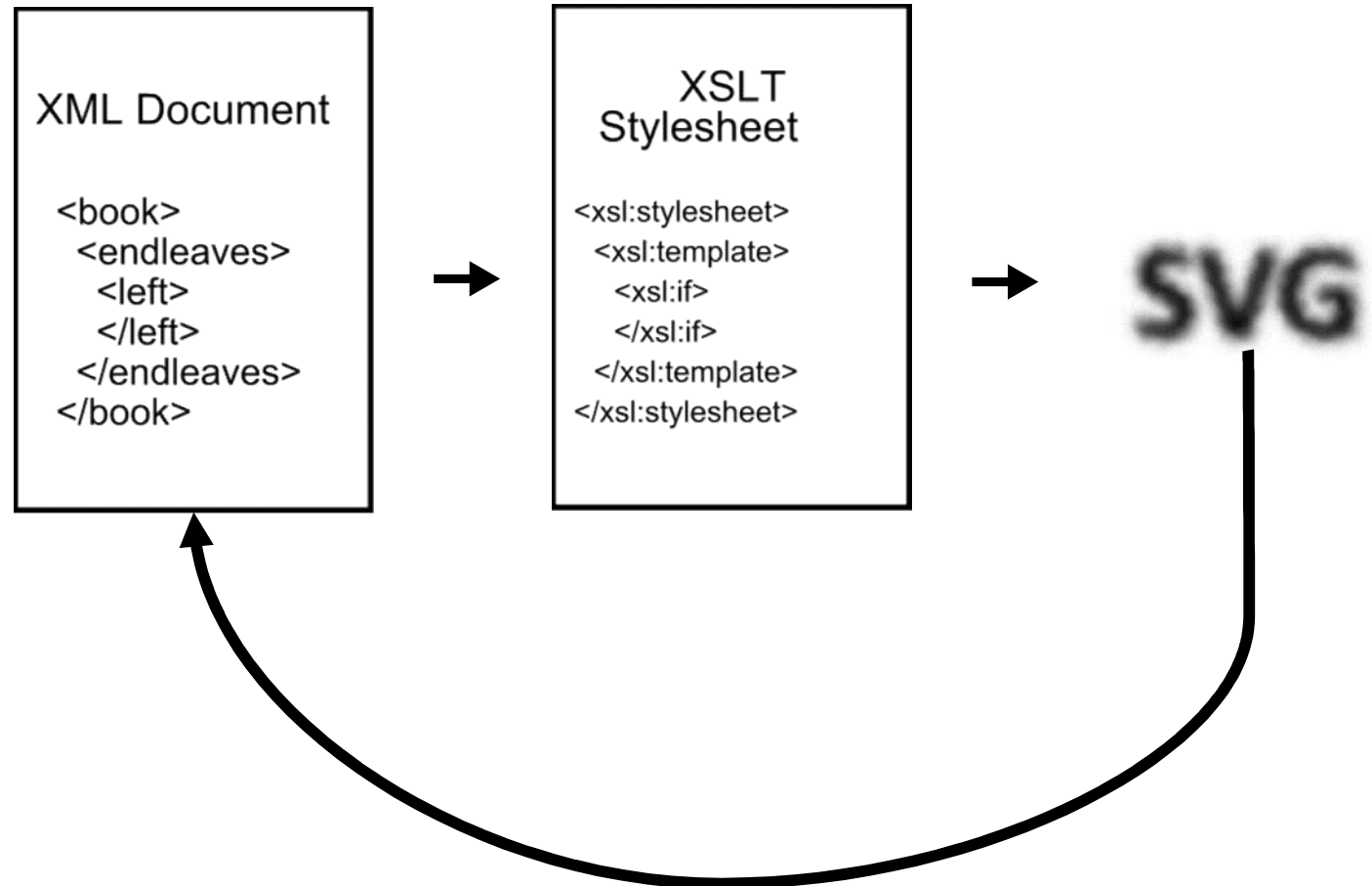
Information accuracy

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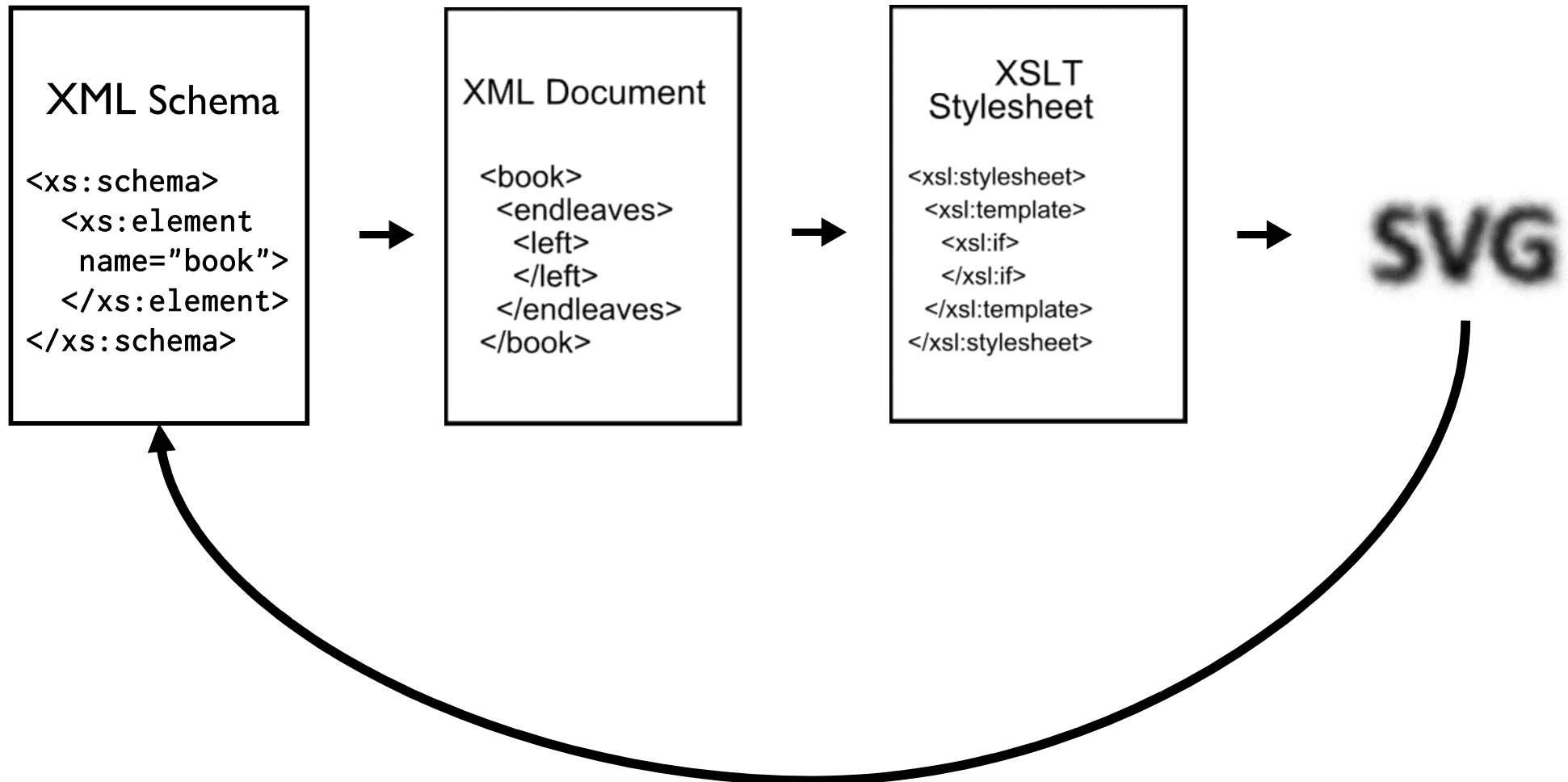
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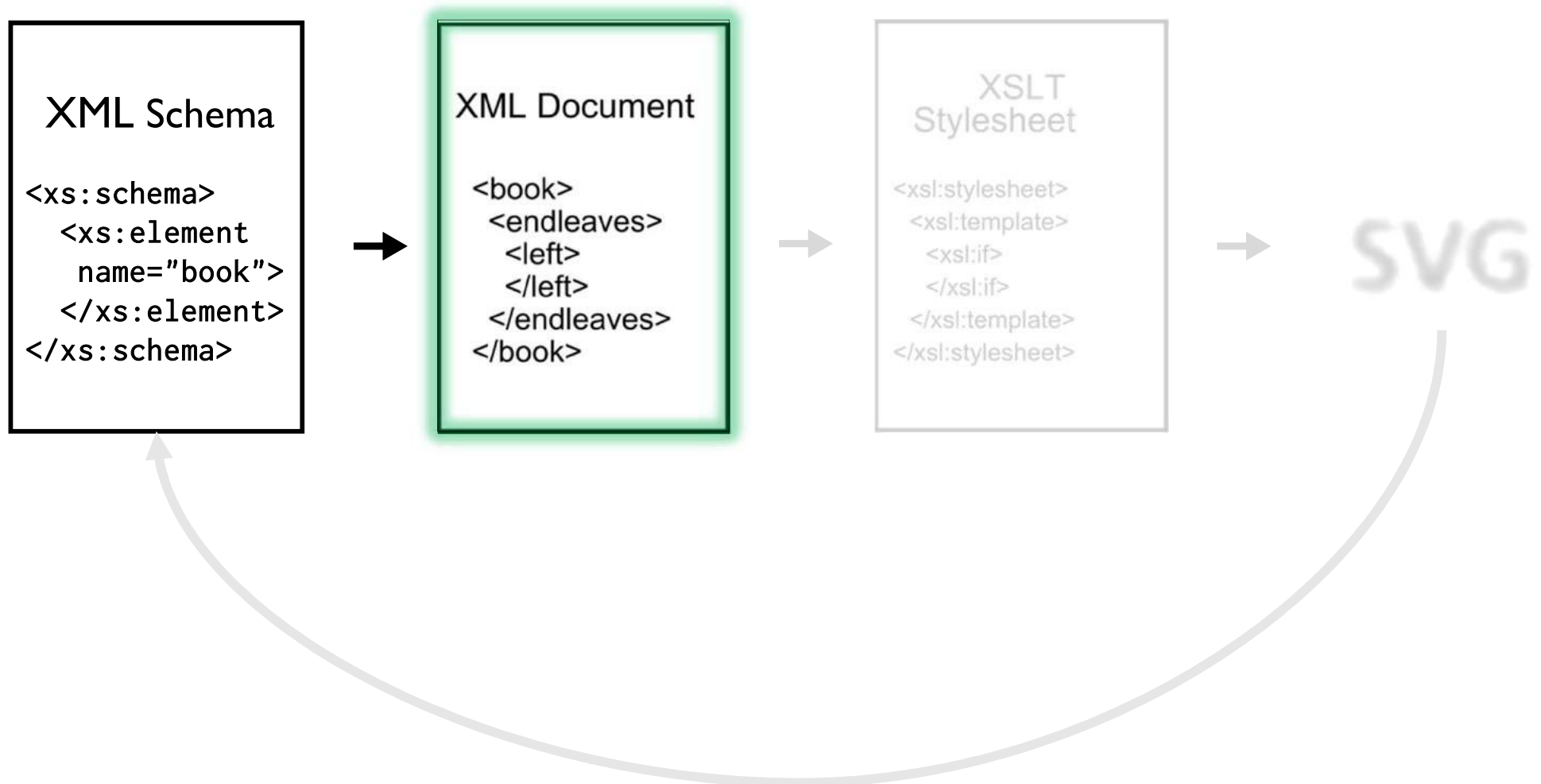
Information accuracy



Inform Description Schema Design



Inform Description Schema Design



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leoba / VisColl Unwatch 5 Unstar 7 Fork 1

Visualizing physical manuscript collation

36 commits 1 branch 0 releases 2 contributors

Branch: master VisColl / +

leoba adding schemas and documentation. Latest commit 9ca2746 9 days ago

File	Commit Message	Time Ago
Collation-AC-9-8-13	Adding Alberto's original XML to SVG XSLT to the archive.	7 months ago
data	adding schemas and documentation.	9 days ago
xsl	Update process7.xsl	5 months ago
LICENSE	Adding all files to repository	a year ago
README.md	Update README.md	4 months ago

README.md

VisColl

This project is for XSL transforms for visualization of quire structure from a parsed collation formula.

VisColl involves three steps:

1. Create a Collation Model
2. Create an Image List
3. Generate a Collation Visualization (see <http://dorpdev.library.upenn.edu/collation/> for some examples of what the Collation Visualization looks like)

Create a Collation Model

To create a collation model, use the Collation Modeler form (currently at <http://tinyurl.com/CollModel/>)

Code Issues 0 Pull requests 0 Wiki Pulse Graphs

HTTPS clone URL <https://github.com>

You can clone with HTTPS, SSH, or Subversion. @

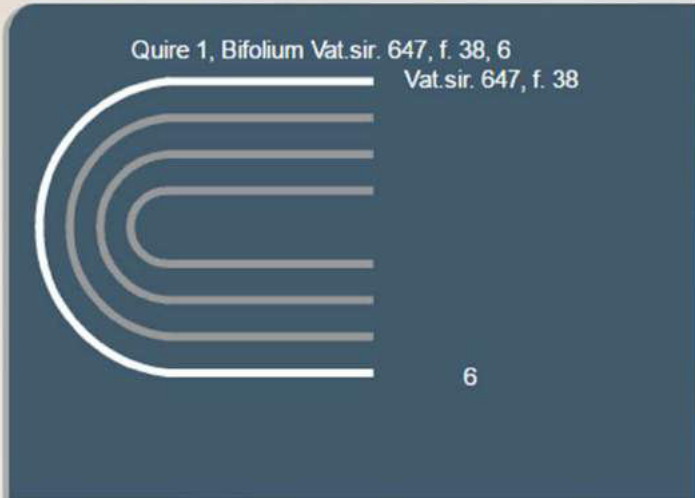
Clone in Desktop Download ZIP

<https://github.com/leoba/VisColl>

SGP Select a Quire ▾

Quire 1 (8) Show All Hide All

Quire 1, Bifolium Vat.sir. 647, f. 38, 6



Vat.sir. 647, f. 38r(v)



6r

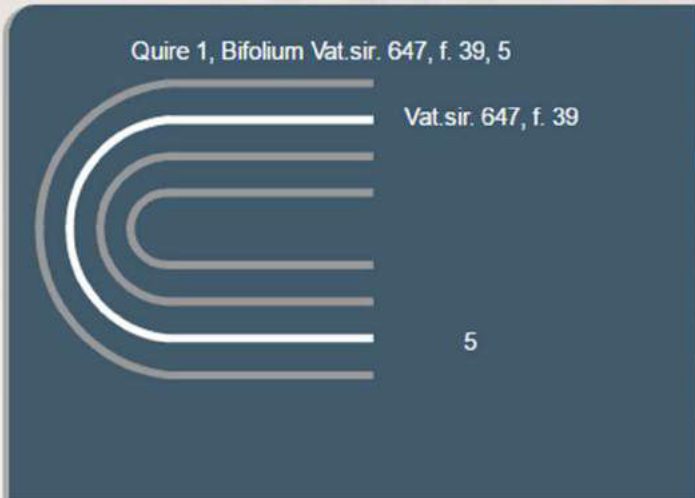


6v



Vat.sir. 647, f. 38v(r)

Quire 1, Bifolium Vat.sir. 647, f. 39, 5



Vat.sir. 647, f. 39r(v)



5r



5v



Vat.sir. 647, f. 39v(r)

Quire 1, Bifolium 1, 4

digital Galen Syriac palimpsest

Quire 1 (8) Show All Hide All

Quire 1, Bifolium Vat.sir. 647, f. 38, 6 ⇄

Quire 1, Bifolium Vat.sir. 647, f. 38, 6
Vat.sir. 647, f. 38

Vat.sir. 647, f. 38r(v)

6r

6v

Vat.sir. 647, f. 38v(r)

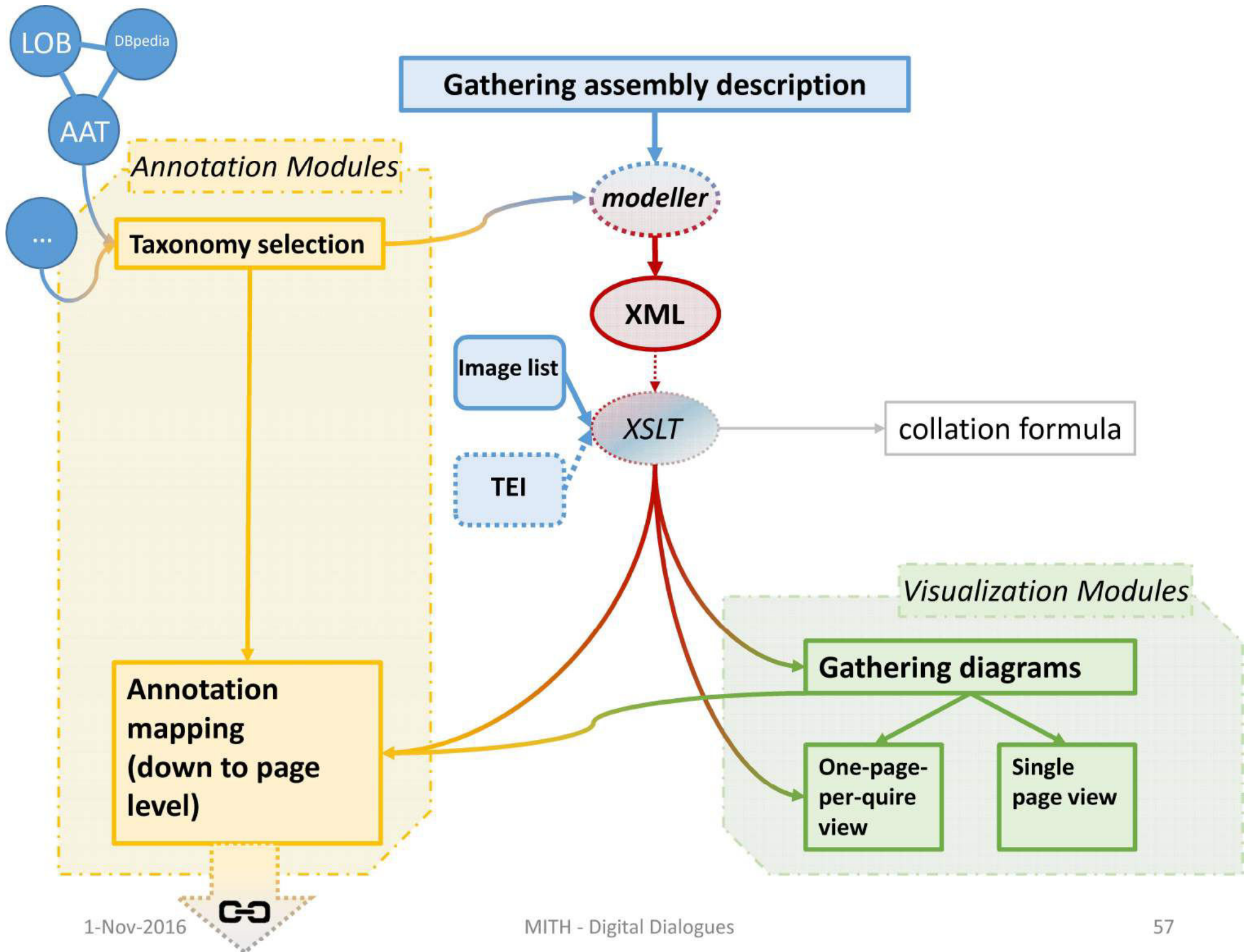
Quire 1, Bifolium Vat.sir. 647, f. 39, 5 ⇄

private library

Vatican library

<http://dorpdev.library.upenn.edu/collation>

<http://digitalgalen.net/>



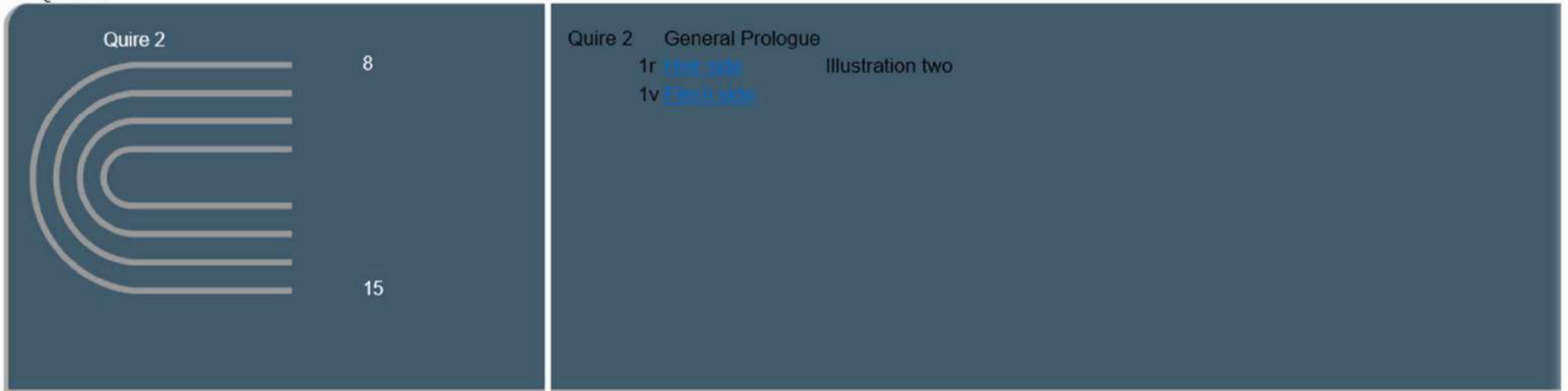
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Show All Units Hide All Units

Manuscript: parchment [Parchment](#)

Quire 1

Quire 2



Quire 3

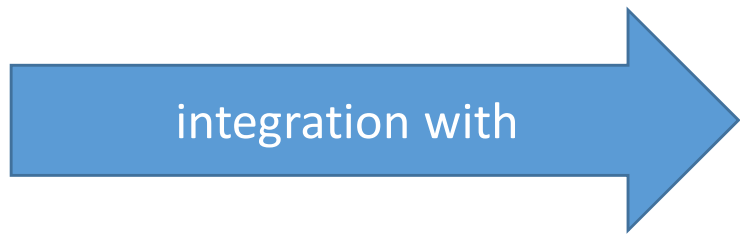
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Quire 5

Quire 6

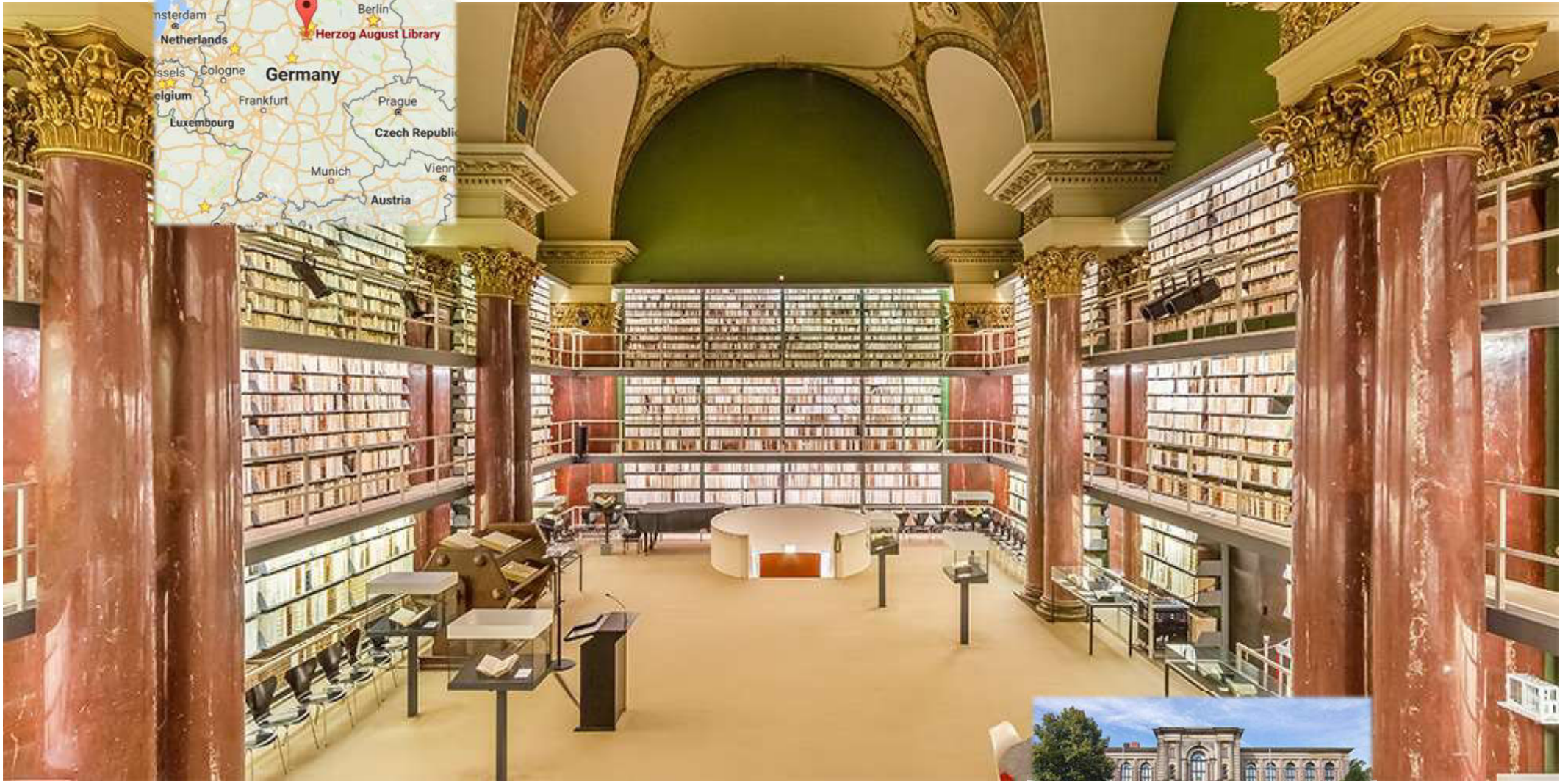
Quire 7

Quire 8



International
Image
Interoperability
Framework

Conservation for Digitization 2.0

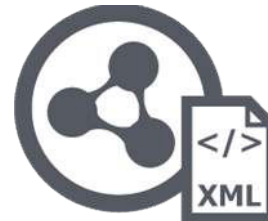


SEMANTIC LAYER

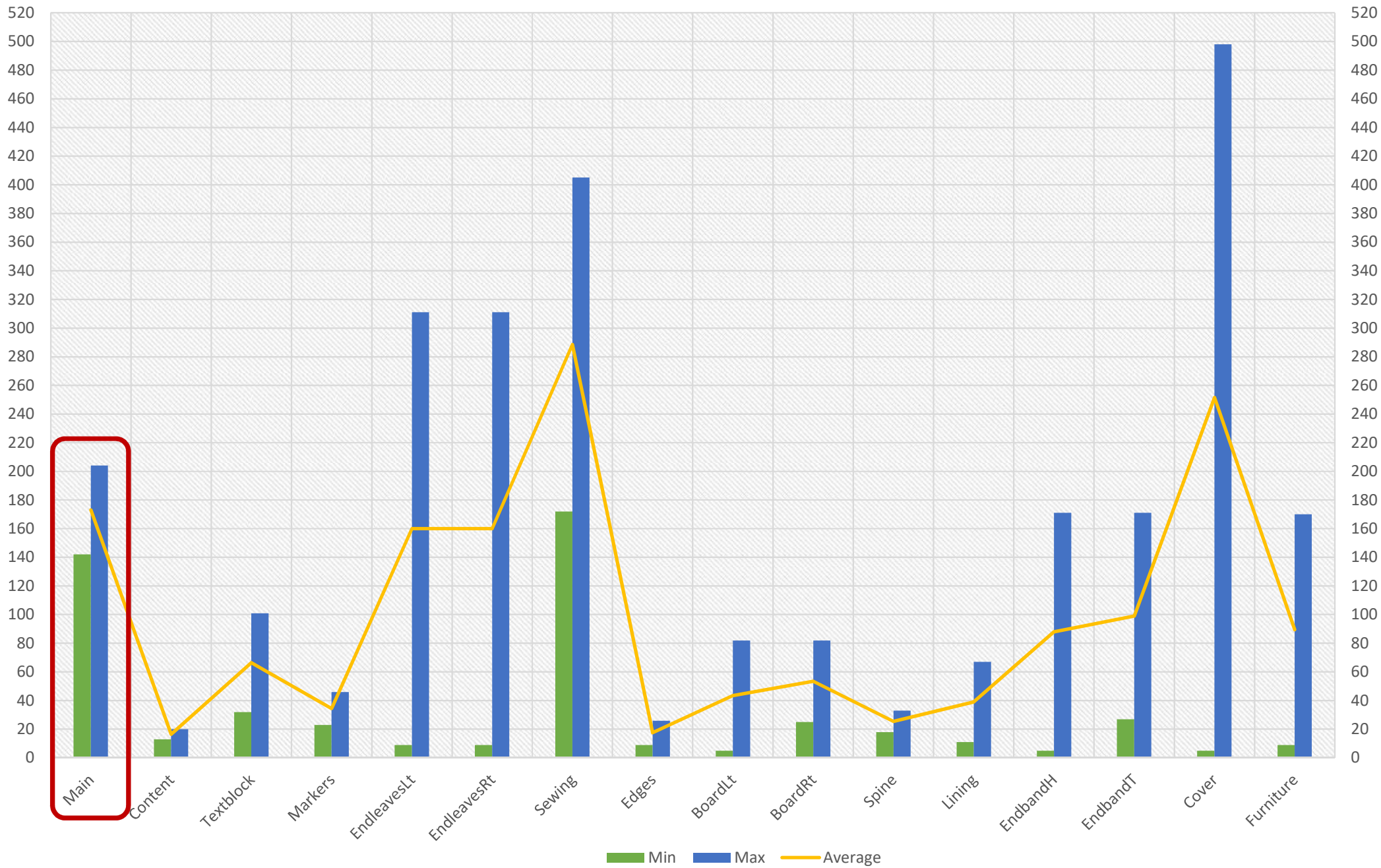
LIGATUS 



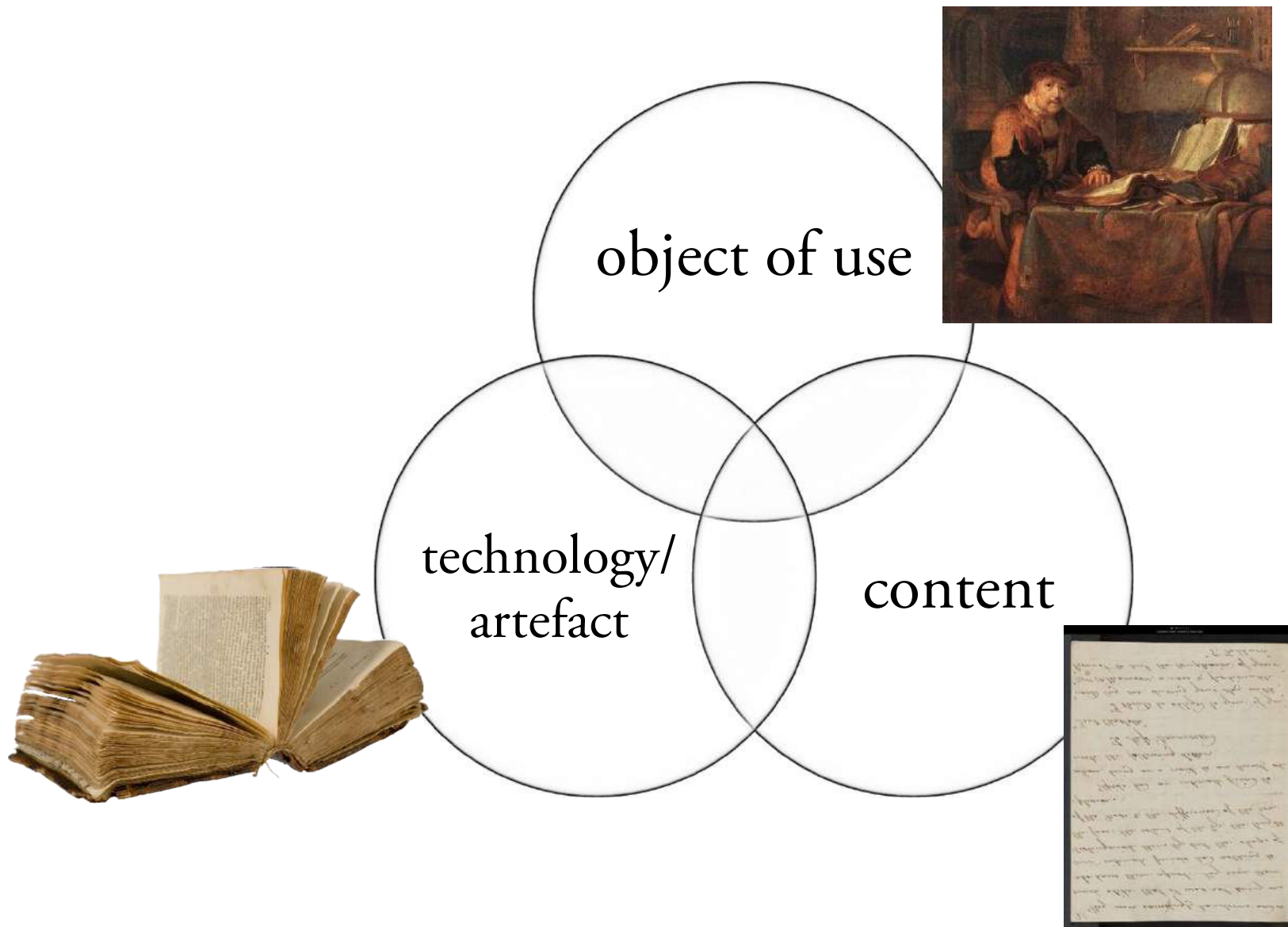
CIDOC CRM |  CONCEPTUAL
REFERENCE
MODEL



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	ID	Main	Content	Textblock	Markers	EndleavesLt	EndleavesRt	Sewing	Edges	BoardLt	BoardRt	Spine	Lining	EndbandH	EndbandT	Cover	Furniture	Total
2	A9Politica2o	188	20	53	0	112	55	399	15	58	58	30	15	89	89	498	14	1693
3	A15Arithmetica	177	20	53	0	78	78	239	15	0	0	27	29	0	0	315	17	1048
4	A16Jur2o	183	20	32	0	55	55	405	15	82	82	24	0	171	171	414	138	1847
5	A95Poetica	163	20	48	0	72	72	251	9	0	0	21	0	0	0	324	17	997
6	A164Hist2o	188	20	101	0	126	126	377	19	0	0	30	16	92	92	295	14	1496
7	A213Historica	194	20	48	0	141	63	285	15	0	0	24	29	82	82	205	17	1205
8	A213Historica2o	188	20	53	0	76	84	365	26	44	44	30	39	91	91	490	14	1655
9	A223Juridica2o	183	20	32	0	55	91	362	20	49	49	24	0	46	46	245	170	1392
10	A604Theologica	183	20	48	0	71	16	363	26	34	34	30	0	126	126	415	14	1506
11	A1311Historica2o	183	20	53	0	129	129	293	15	52	52	30	0	142	142	469	0	1709
12	A1381Medica	194	20	48	0	123	123	285	26	0	0	30	32	136	136	211	14	1378
13	A1971Grammatica	151	20	53	0	0	0	216	9	0	0	18	0	0	0	358	0	825
14	A2316Poetica	142	20	48	0	0	0	201	9	0	0	24	0	0	0	154	0	598
15	A3993Theologica	177	20	53	0	57	122	239	9	0	0	27	30	0	0	271	16	1021
16	CodGuelf15Helmst	193	13	46	23	157	111	391	15	46	46	33	27	170	95	390	113	1869
17	CodGuelf22Helmst	171	13	49	0	9	53	362	15	5	0	30	0	5	0	248	122	1082
18	CodGuelf111Aug4o	181	13	33	0	0	11	285	9	78	78	27	19	67	0	244	140	1185
19	CodGuelf177Aug2o	204	13	48	0	125	182	286	9	25	25	33	25	82	82	207	14	1360
20	CodGuelf507Aug2o	188	13	54	23	124	124	336	9	80	80	30	0	113	123	226	80	1603
21	CodGuelf1126Helmst	158	13	33	0	9	9	172	9	0	0	18	0	0	0	145	0	566
22	CodGuelf1391Helmst	185	13	49	0	9	9	320	9	79	79	27	0	79	79	248	92	1277
23	CodGuelf3716Aug2o	188	13	49	0	120	120	299	19	73	73	30	11	46	122	331	87	1581
24	CodGuelf53516Nov	177	13	49	0	9	9	310	10	49	57	27	0	5	0	239	92	1046
25	HC65b4oHelmst	162	20	53	0	61	61	221	9	0	0	18	0	0	0	5	0	610
26	HC1888oHelmst	193	20	53	0	69	74	285	9	63	71	33	67	129	129	276	93	1564
27	HE2692oHelmst	185	20	48	46	125	125	375	15	58	58	30	0	5	0	442	139	1671
28	HF13944oHelmst	172	20	53	0	121	16	285	9	0	0	24	0	0	0	295	0	995
29	HJ2988oHelmst	188	20	48	0	71	71	285	9	63	63	33	25	27	27	375	36	1341
30	HK4548oHelmst	172	20	48	0	116	116	285	9	0	0	24	0	0	0	287	0	1077
31	HL288oHelmst	196	20	53	0	311	311	285	26	0	0	27	44	62	62	330	20	1747
32	HP14028oHelmst	156	20	53	0	69	69	287	10	0	0	18	0	0	0	0	0	682
33	HT2832oHelmst	179	20	48	0	77	77	334	9	63	63	27	0	0	0	207	9	1113
34	HYv4398oHelmst	174	20	96	0	61	61	285	15	0	0	27	35	0	0	217	28	1019
35	HYv4828oHelmst	177	20	96	0	117	117	285	9	0	0	27	35	0	0	332	46	1261
36																		
37	Min	142	13	32	23	9	9	172	9	5	25	18	11	5	27	5	9	566
38	Max	204	20	101	46	311	311	405	26	82	82	33	67	171	171	498	170	1869
39	Average	173	17	67	35	160	160	289	18	44	54	26	39	88	99	252	90	1218
40																		



Conclusions





Digital Cultural Object

Use your book conservators...



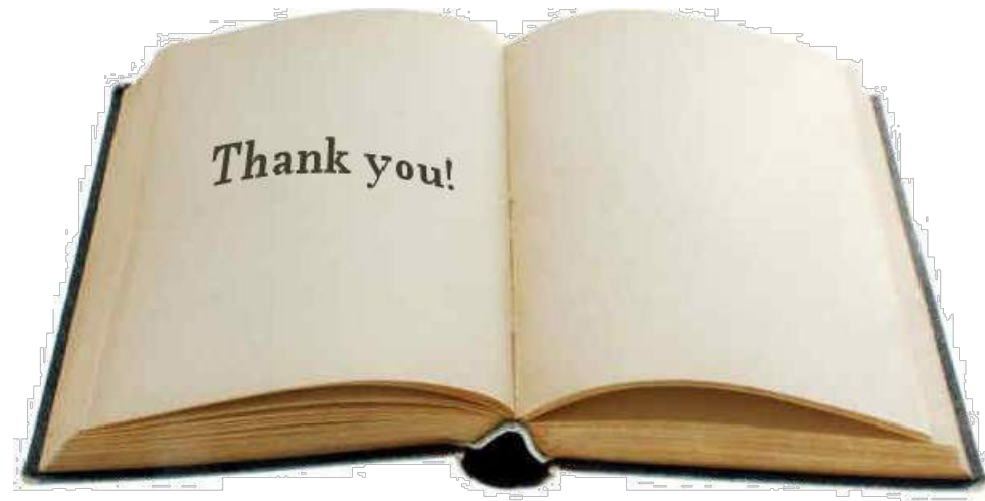
...and let your children play with the books!



THE BOOKBINDER'S.


The children have called in to see the bookbinder's shop, and are looking at a map, which he has varnished for them. Arthur is telling his little sister he thinks he should like to be a bookbinder, it seems such a nice business.

(Oscar Pletsch, *Child-Land: Picture-Pages For The Little Ones*, London: S. W. Partridge & Co., 1873)



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