Conservation documentation

- Didactic material
 - based on teaching conservation students
 - target audience: conservators

Conservation documentation

- Didactic material
 - based on teaching conservation students
 - target audience: conservators
- Realisation of limitations
 - target audience: CRM-SIG



What is it? (A summary)

Importance of documentation

- An account of what happened when conservators were involved
- A contribution to the collective knowledge in the profession

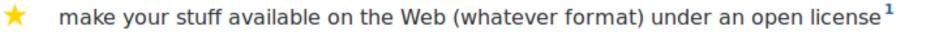
By CERECS ART S.R.L - self-made, CC BY-SA 3.0, https://en.wikipedia.org/w/index.php?curid=21905182

Importance of documentation

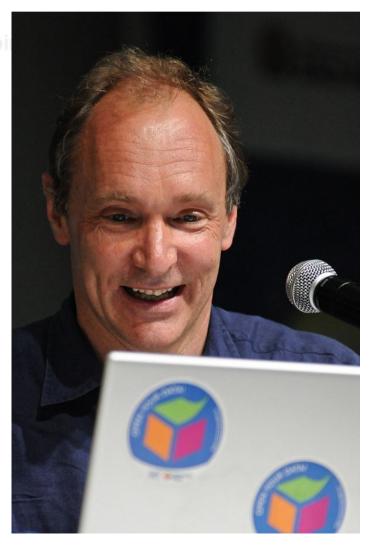
- An account of what happened when conservators were involved
- A contribution to the collective knowledge in the profession

when shared

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- \star make it available as structured data (e.g., Excel instead of image scan of a table)²
- ★★★ use non-proprietary formats (e.g., CSV instead of Excel)³
- \star \star \star \star \star use URIs to denote things, so that people can poi
- $\star \star \star \star \star \star$ link your data to other data to provide context⁵



Technology

- How was an object made
- Events which led to the current structure and material composition of the object
- Identification of components

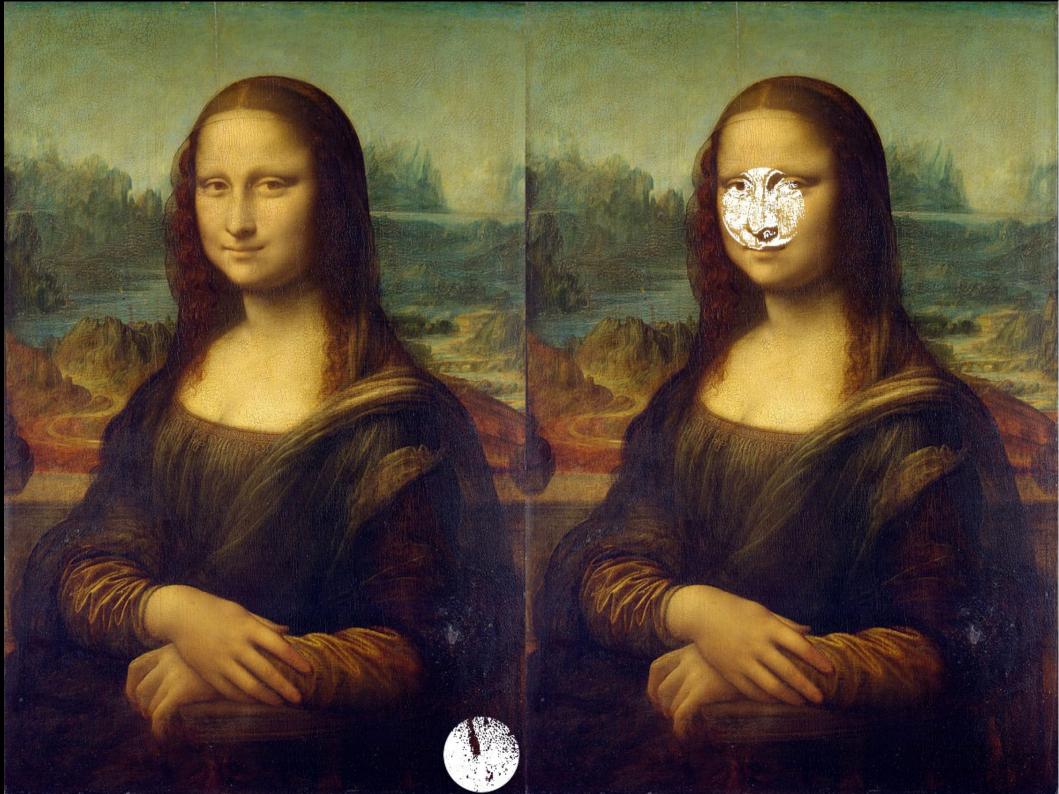
- Technology
- Condition
 - What is the condition state of an object?
 - Condition types associated with object parts

By Waerloeg - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=32050292

- Technology
- Condition
- Value
 - What are the values of the object for specific audiences?

- Technology
- Condition
- Value
 - What are the values of the object for specific audiences?
 - Has condition affected these values?





- Technology
- Condition
- Value
 - What are the values of the object for specific audiences?
 - Has condition affected these values?
 - Special cases:
 - sacred objects, (e.g. object cannot leave a space)
 - traditions (e.g. object cannot be handled by a non-member of a group)

- Technology
- Condition
- Value
- Proposed treatment
 - Objectives and plans for treatment
 - What would we like to happen?
 - Each objective/plan associated with a condition

- Technology
- Condition
- Value
- Proposed treatment
- Actual treatment
 - What was the treatment which took place?

- Technology
- Condition
- Value
- Proposed treatment
- Actual treatment
- Assessment
 - Did the treatment achieve the objectives?
 - Condition state

- Technology
- Condition
- Value
- Proposed treatment
- Actual treatment
- Assessment
 - Did the treatment achieve the objectives?
 - Condition state

Documents may include

• Purpose of document

- notes on why the work was done

Documents may include

- Purpose of document
- Observations
 - actions to inspect the object
 - sampling (object modification)
 - positive negative
 - description of methods of inspecion
 - analytical techniques used
 - naked eye inspection

Naked eye + instruments

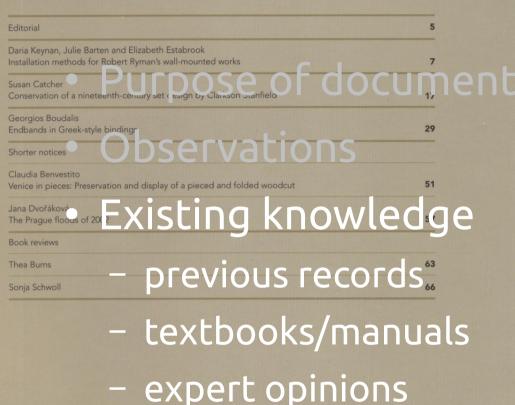
- Recording situation uncertainty
 - Conditions under which the document was created
 - type of light (e.g. too dark, from 700nm to 1000nm)
 - location/scale of the object (e.g. too far to see, microscope magnification 25×)
 - accessibility of the observed matter (e.g. painting inside a frame, sample does not contain preparation layer)



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Volume 31 • 2007

Documents may include





The Paper Conservator

Volume 31 • 2007

www.icon.org.uk

T+44(0)20 7785 3807 F+44(0)20 7785 3806





Documents may include

- Purpose of document
- Observations
- Existing knowledge
- Supporting statements
 - by the conservator using evidence to make conclusions (e.g. results of FTIR confirm a pigment based on previous FTIR results)



The problem of free text

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblock by means of sewing thread only; a textile spine lining extending onto the outer face of the boards; endbands sewn to the bookblock and the head and tail edges of the boards; and metal bosses and triple interlaced leather clasp-straps laced through the right board with metal rings that fit over edge pins on the left board.

Honey, A., and N. Pickwoad. 2010. 'Learning from the Past: Using Original Techniques to Conserve a Twelfth-century Illuminated Manuscript and Its Sixteenth-century Greek-style Binding at the Monastery of St Catherine, Sinai'. In Conservation and the Eastern Mediterranean: Contributions to the Istanbul Congress 20-24 September 2010, ed. C. Rozeik, R. Ashok, and D. Saunders, 56–61. Istanbul, Turkey: International Institute for Conservation of Historic and Artistic Works.

- Requirements
 - Read/write English (grammar)

- Requirements
 - Read/write English (grammar)
 - Understand terminology

- Requirements
 - Read/write English (grammar)
 - Understand terminology
 - Time





Calais: Connect. Everything.

We want to make all the world's content more accessible, interoperable and valuable. Some call it Web 2.0, Web 3.0, the Semantic Web or the Giant Global Graph - we call our piece of it Calais.

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Latest News

Calais 4.6 is Available for Beta Testing

Politics, Conflict and housekeeping - quite a combination!

Spring Cleaning and Some Touch-ups

It's time for spring cleaning and a few new features for OpenCalais

Looking for Thomson Reuters Clients (huh?)

Thomson Reuters clients - tell us who you are

Featured Application



CBS Interactive/CNET

uses Open

uses OpenCalais for

semantic analysis of its tech product reviews, award-winning news, and blog postings on consumer electronics and technology, where it streamlines CNET's content operations, drive audience engagement, and further extends CNET's reach across the Web. Read about CNET's pioneering work in this **ReadWriteWeb** article.

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- Content Manager
- Developer

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The Calais Web Service

The Calais web service automatically attaches rich semantic metadata to the content you submit. Using natural language processing, machine learning and other methods, Calais categorizes and links your document with entities (people, places, organizations, etc.), facts (person "x" works for company "y"), and events (person "z" was appointed chairman of company "y" on date "x").

* The Calais Viewer works with Firefox and Internet Explorer - other browsers may yield unpredictable results

Enter text here:

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblock by means of sewing thread only; a textile spine lining extending onto the outer face of the boards; endbands sewn to the bookblock and the head and tail edges of the boards; and metal bosses and triple interlaced leather clasp-straps laced through the right board with metal rings that fit over edge pins on the left board.

Submit



Show RDF Entry Page

± =		The binding has an ur
Topics:		e lining extending ont ather clasp-straps lac
Hospitality Recreation	98%	
Social Tags:		
Hospitality Recreation		
Book publishing	***	
Bookbinding	***	Hospitality
Book design	***	' ()
Sewing	食食食	l
Book	食食食	
Printing	食食食	
Graphic design	食食食	
Entities:		
Industry Term	X	
🗹 metal rings		

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblo e lining extending onto the outer face of the boards; endbands sewn to the bookblock and the head and tail edges of the ather clasp-straps laced through the right board with **metal rings** that fit over edge pins on the left board.



Show RDF Entry Page

•	
Topics:	
Hospitality Recreation	98%

Social Tags:		
Hospitality Recreation	会会会	
Book publishing	食食食	
Bookbinding	会会会	
Book design	食食食	
Sewing	食食食	
Book	食食食	
Printing	食食食	
Graphic design	食食食	

Entities:

Industry Term

Industry?

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookbloc e lining extending onto the outer face of the boards; endbands sewn to the bookblock and the head and tail edges of the ather clasp-straps laced through the right board with **metal rings** that fit over edge pins on the left board.



Show RDF Entry Page

H		The binding has an unsuppor
Topics:		e lining extending onto the o
		ather clasp-straps laced thro
Hospitality Recreation	98%	
Social Tags:		
Hospitality Recreation	***	
Book publishing	***	
Bookbinding	***	
Book design	会会会	
Sewing	☆☆ グ	
Book		
Printing		Social tags
Graphic design	RA	
Entities:		Social tags Jord matching
Industry Term		Ŭ
🗹 metal rings		

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblo e lining extending onto the outer face of the boards; endbands sewn to the bookblock and the head and tail edges of the ather clasp-straps laced through the right board with **metal rings** that fit over edge pins on the left board.

- Requirements
 - Read/write English (grammar)
 - Understand terminology
 - Time
 - Meaning is difficult to extract

Structured records

- Limitations:
 - Read/write English (grammar)
 - Understand terminology

- Alternatives:
 - Avoid syntax

Structured records

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblock by means of sewing thread only; a textile spine lining extending onto the outer face of the boards; endbands on to the bookblock and the head and tail edges of the boards; and metal bosses and triple into the boards; and metal bosses and triple into the board with metal rings that fit over edge p

structure

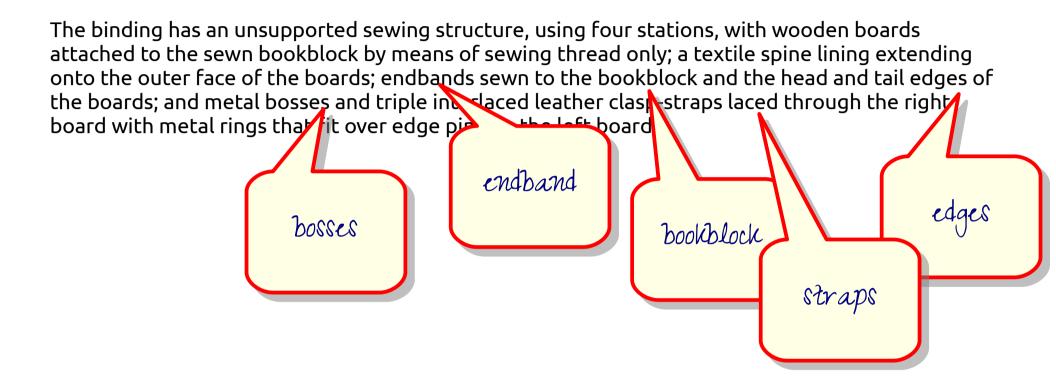
Structured records

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblock by means of sewing thread only; a stile spine lining extending onto the outer face of the boards; endbands sewn to the bookblock a stile bead and tail edges of the boards; and metal bosses and triple interlaced leather clasp-structure board with metal rings that fit over edge pins on the left board.

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblock by means of sewing thread only; a textile spine lining entending onto the outer face of the boards; endbands sewn to the bookblock and the head and fil edges of the boards; and metal bosses and triple interlaced leather clasp-straps laced through the sight board with metal rings that fit over edge pins on the left board.

boards

The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblock by means of sewing thread only; a textile spine lining extending onto the outer face of the boards; endbands sewn to the bookblock and the had and tail edges of the boards; and metal bosses and triple interlaced leather clasp-straps laced frough the right board with metal rings that fit over edge pins on the left board.



The binding has an unsupported sewing structure, using four stations, with wooden boards attached to the sewn bookblock by means of sewing thread only; a textile spine lining extending onto the outer face of the boards; endbands sewn to the bookblock and the head and tail edges of the boards; and metal bosses and triple interlaced leather clasp-straps laced through the right board with metal rings that fit over edge pins on the left board.

structures	boards	linings	endbands	bosses
type	material	material	attachment	material
sewn	wood	textile	sewn	metal
stations	рарег	рарег	type	type
supported	attachment	size	•••	••••
unsupported	sewn	extended	•••	•••

structures				
type	stations			
sewn	supported			
adhesive	unsupporte	d		
structures	boards	linings	endbands	bosses
type	material	material	attachment	material
sewn	wood	textile	sewn	metal
stations	paper	рарег	type	type
supported	attachment	size		•••
unsupported				

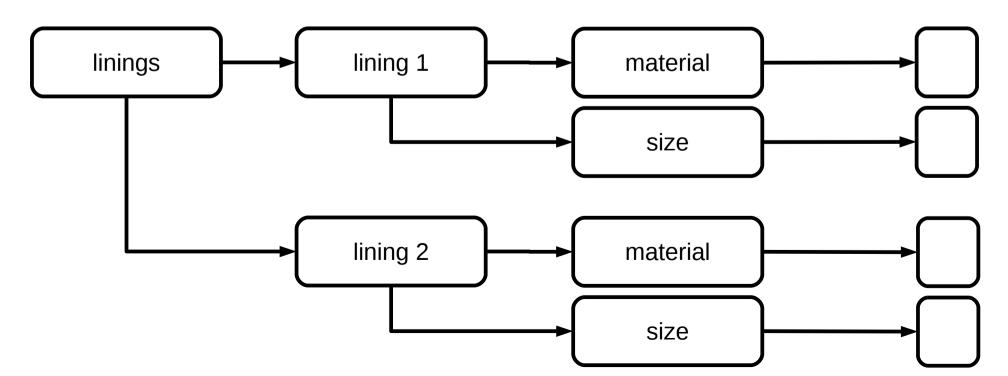
structures			boards			
type	stations	1	materi	al	att	achment
sewn	supported		wood		se	n
adhesive	unsupporte	d	рарег		sli	ips
structures	boards	ds linings		endbands		bosses
type	material	ial material		attachment		material
sewn	wood	textile		sewn		metal
stations	рарег	рарег		type		type
supported	attachment	size		•••		•••
unsupported	sewn	extende	ed	•••		

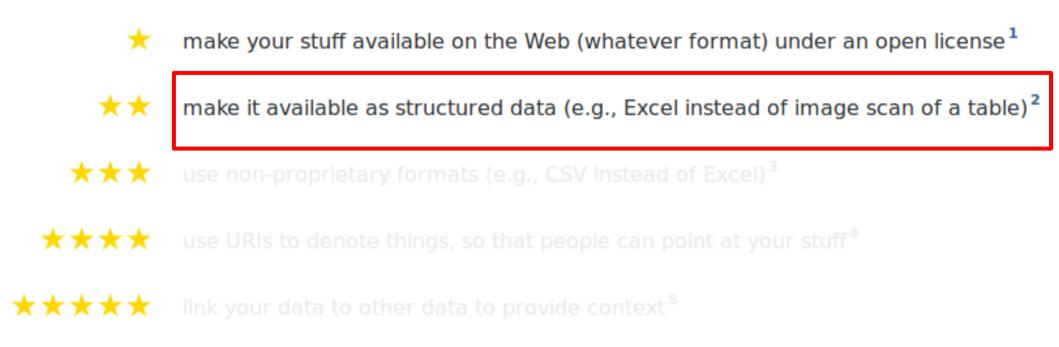
structures

book no	type	stations
book 1	sewn	supported
book 2	sewn	unsupported
book 3	adhesive	unsupported
book 4	sewn	supported
book 5	sewn	unsupported
•	•	
•		

boards					
book no	material	attachmen t			
book 1	wood	slips			
book 2	wood	sewn			
book 3	paper	adhesive			
book 4	paper	slips			
book 5	wood	sewn			
•					
•					

structures	boards	linings	endbands	bosses
type	material	material	attachment	material
sewn	wood	textile	sewn	metal
stations	paper	paper	type	type
supported	attachment	size		
unsupported	sewn	extended		





- Limitations:
 - Read/write English (grammar)

- Alternatives:
 - Avoid syntax:
 - Tabular structure

Hierarchical structure

data structure a.k.a. schema

- Limitations:
 - Read/write English (grammar)
 - Understand terminology

- Alternatives:
 - Avoid syntax:
 - Tabular structure
 - Hierarchical structure
 - Agree on terms:

Thesaurus

• Consult a thesaurus for your terms

Thesaurus

• Consult a thesaurus for your terms, e.g.:





Art & Architecture Thesaurus® Online



Getty Thesaurus of Geographic Names® Online



Union List of Artist Names® Online



Cultural Objects Name Authority[™] Online

With conservation terms from GCI, including brand names for materials.

AAT Thesaurus

headbands (binding components) Note: Functional or ornamental bands of flexible material sewn or adhered to the back of a book's text block at head and tail, projecting slightly above and below the text block. Terms: headbands (binding components) (preferred,C,U,LC,English-P,D,U,PN) Terms headband (binding component) (C,U,English,AD,U,SN) endbands (C,U,English,UF,U,N) head bands (binding components) (C,U,English,UF,U,N) kapitalen (boekbandonderdelen) (C,U,Dutch-P,D,U,U) kapitaal (boekbandonderdeel) (C,U,Dutch,AD,U,U) tranchefiles (C,U,French-P,D,U,PN) tranchefile (C,U,French,AD,U,SN) **Objects Facet** Components (Hierarchy Name) (G) Context Related components (objects) (G) < components by specific context> (G) <information form components> (G) <gathered matter components> (G) headbands (binding components) (G) Related concepts:headbanding Sources and Contributors: endbands..... [VP] Binding Terms (1988) Roberts and Etherington, Bookbinding and the Conservation of Books (1982) headband (binding component)...... [VP] Getty Vocabulary Program rules headbands (binding components)...... [VP Preferred] Binding Terms (1988) headbands References Candidate term Candidate comment -- HRC -- 6/96 CDMARC Subjects: LCSH (1988-) headbands (bookbinding) Getty Vocabulary Program rules Glaister, History of the Book (1960) 176; headbands Greenfield. Books (1983) 5: headbands Harrod's Librarians' Glossary (1984) headbands Lee, Bookmaking (1979) Bits of colored cloth that protrude slightly at the back on top and bottom; headbands Middleton, Restoration of Leather Bindings (1984) illustration, 108; headbands Tauber, Library Binding Manual (1972) 123; headbands head bands (binding components)...... [VP] Pierpont Morgan Library Word List (1990)

Thesaurus: headbands: concept

headbands (binding components)

Note: Functional or ornamental bands of flexible material sewn or adhered to the back of a book's text block at head and tail, projecting slightly above and below the text block.

Terms:

headbands (binding components) (preferred,C,U,LC,English-P,D,U,PN) headband (binding component) (C,U,English,AD,U,SN) endbands (C,U,English,UF,U,N)

head bands (binding components) (C,U,English,UF,U,N)

kapitalen (boekbandonderdelen) (C,U,Dutch-P,D,U,U)

kapitaal (boekbandonderdeel) (C,U,Dutch,AD,U,U)

tranchefiles (C,U,French-P,D,U,PN)

```
tranchefile (C,U,French,AD,U,SN)
```

Thesaurus: headbands: definition

headbands (binding components)

Note: Functional or ornamental bands of flexible material sewn or adhered to the back of a book's text block at head and tail, projecting slightly above and below the text block.

Terms:

headbands (binding components) (preferred,C,U,LC,English-P,D,U,PN) headband (binding component) (C,U,English,AD,U,SN) endbands (C,U,English,UF,U,N)

head bands (binding components) (C,U,English,UF,U,N)

kapitalen (boekbandonderdelen) (C,U,Dutch-P,D,U,U)

kapitaal (boekbandonderdeel) (C,U,Dutch,AD,U,U)

tranchefiles (C,U,French-P,D,U,PN)

tranchefile (C,U,French,AD,U,SN)



Thesaurus: headbands: label

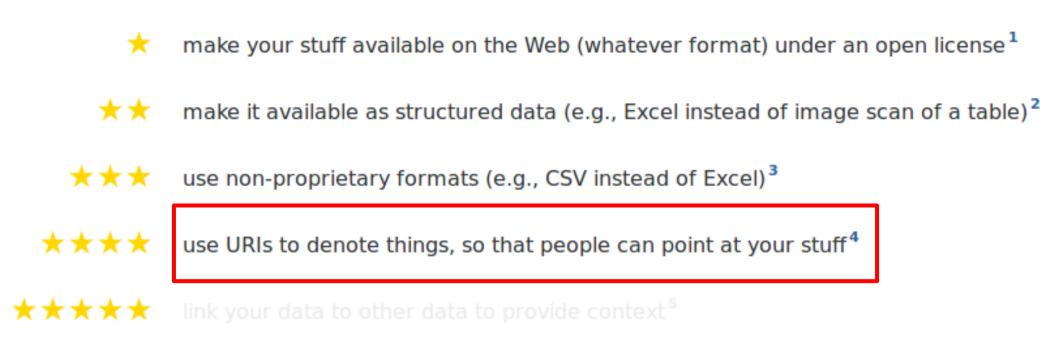
headbands (binding components)

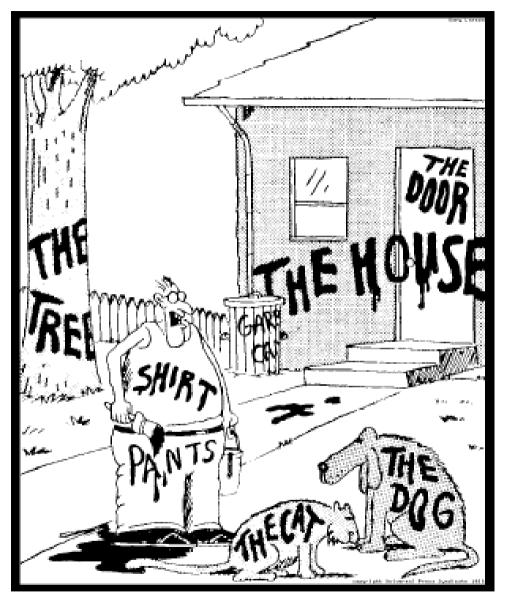
Note: Functional or ornamental bands of flexible material sewn or adhered to the back of a book's text block at head and tail, projecting slightly above and below the text block.

Terms:

headbands (binding components) (preferred,C,U,LC,English-P,D,U,PN) headband (binding component) (C,U,English,AD,U,SN) endbands (C,U,English,UF,U,N) head bands (binding components) (C,U,English,UF,U,N) kapitalen (boekbandonderdelen) (C,U,Dutch-P,D,U,U) kapitaal (boekbandonderdeel) (C,U,Dutch,AD,U,U) tranchefiles (C,U,French-P,D,U,PN)

Preferred label





"Now! *That* should clear up a few things around here!"

headbands (binding components)

Source:http://vocab.getty.edu/aat/300195163

Subject (100)	Predicate	Object	All	Website Hierarchy Download in: JSON JSC	NLD RDF N3/Turtle N-T	riples
				Inference	Explicit only	•

Statements in which the resource exists as a subject.

Predicate	Object
rdf:type	gvp:Concept
rdfs:seeAlso	http://www.getty.edu/vow/AATFullDisplay?find=&logic=AND¬e=&subjectid=300195163
dcterms:created	1991-07-23T00:00:00
dcterms:modified	1996-09-14T00:00:00, 2001-07-26T22:01:40, 2001-07-26T22:15:12, 2001-07-26T22:29:32, 2007-01-31T15:47:23, 2007-07-06T16:20:36, 2007-10-26T09:05:26, 2007-10-26T09:05:49, 2008-01-03T10:23:50, 2010-04-23T06:00:38, 2010-04-23T06:00:39, 2011-01-07T12:58:45, 2011-01-07T12:58:47, 2012-03-16T14:11:18, 2014-08-01T08:30:52, 2014-08-01T08:30:53
skos:changeNote	aat_rev:5000038862, aat_rev:5000038863, aat_rev:5000038864, aat_rev:5000038865, aat_rev:5001103489, aat_rev:5001103490, aat_rev:5001103491, aat_rev:5001103492, aat_rev:5001103493, aat_rev:5001175126, aat_rev:5001175127, aat_rev:5001310612, aat_rev:5001602293, aat_rev:5001670501, aat_rev:5001670502, aat_rev:5001670503, aat_rev:5001683379, aat_rev:5001683380, aat_rev:5001686341, aat_rev:5001700535, aat_rev:5001700536, aat_rev:5002484741, aat_rev:5002484742, aat_rev:5002484743, aat_rev:5002484756, aat_rev:5002659497, aat_rev:5002659498, aat_rev:5002659512, aat_rev:5003178095, aat_rev:5003667097, aat_rev:5003667098, aat_rev:5003667099, aat_rev:5003667100, aat_rev:5003667101, aat_rev:5003667102, aat_rev:5003667126
gvp:parentString	binding components, <bindings and="" binding="" components="">, gathered matter components, information form components, <components by="" context="" specific="">, components (objects parts), Components (hierarchy name), Objects Facet</components></bindings>
gvp:parentStringAbbrev	binding components, <bindings and="" binding="" components="">, Objects Facet</bindings>
gvp:displayOrder	16
xl:prefLabel	aat_term:1000195163-en, aat_term:1000315661-fr, aat_term:1000444069-es, aat_term:1000497758-nl, aat_term:1000591536-zh-Hant, aat_term:1000591539-zh-Latn-pinyin-x-notone, aat_term:1000591540-zh-Latn-pinyin-x-hanyu, aat_term:1000591541-zh-Latn-wadegile

- Limitations:
 - Read/write English (grammar)
 - Understand terminology

- Alternatives:
 - Avoid syntax:
 - Tabular structure
 - Hierarchical structure
 - Agree on terms:
 - agree on scope notes
 - use URIs instead of labels



The problem of integration



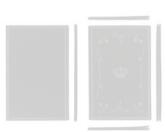
LIGATUS

different projects - different schemas

Schemas

different data depending on i

Binding form: European binding,full binding, smooth spine





רte	916	est	
		Techniqu	

A Ligatus project to compile a reference database of decorated papers and a tool to assist their identification and recording.

paper - 98

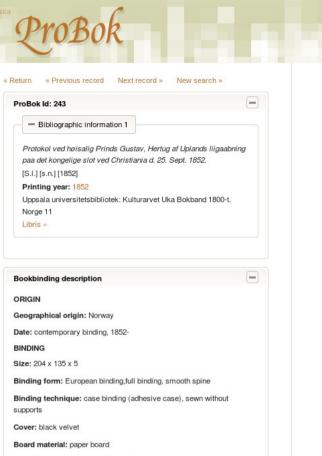
alvin LIGATUS Decorated Papers

Paper:



Type of decorated paper: brocade paper, Brokatpapier

Features:	Feature - 94 Submitted by Aurelie Martin on Thu, 12/17/2015 - 09:35					
Decor	Decoration by format: in-the-sheet decoration					
Decor	ation by number of colours: single-coloured					
Colou	rs: green (color)					
Paper production	paper production - 96 Submitted by Aurelie Martin on Thu, 12/17/2015 - 09:37					
	Technique: surface-colouring (techniques) metal-leaf embossing					
	Tool: relief printing plates positive cut					
	Place: place - 95 (Augsbourg) Submitted by Aurelie Martin on Thu, 12/17/2015 - 09:36 Place name: Augsbourg					
	Maker: Johann Michael					



Bookblock edges: silvered at all edges

Endleaves: bookcloth, brocade, silvercoloured

BINDING DECORATION

Norge 11 Libris »

ORIGIN

BINDING

supports

Decoration technique and material:

silver-tooled; small hand tool, straight-line tool Form:

standard decoration; border line ornamenterat/de ramverk, centrepiece

Ornament and motif: crown, rose, acanthus volute, bladverk, lambrequin

Decorative style: Neo-Rococo







Schemas

Model no1

• BINDING

- Size: 204 x 135 x 5
- Binding form: European binding,full binding, smooth spine
- Binding technique: case binding (adhesive case), sewn without supports
- Cover: black velvet
- Board material: paper board
- Bookblock edges: silvered at all edges
- Endleaves: bookcloth, brocade, silvercoloured
- BINDING DECORATION
 - Decoration technique and material:
 - silver-tooled; small hand tool, straight-line tool
 - Form:
 - standard decoration; border line ornamenterat/de ramverk, centrepiece
 - Ornament and motif:
 - crown, rose, acanthus volute, bladverk, lambrequin
 - Decorative style: Neo-Rococo

Model no2

- Type of decorated paper:
 - brocade paper,
 - Brokatpapier
- Decoration by format: in-the-sheet decoration
- Decoration by number of colours: single-coloured
- Colours: green (color)
- Technique:
 - surface-colouring (techniques),
 - metal-leaf embossing
- Tool:
 - relief printing plates,
 - positive cut
- Place name: Augsbourg
- Maker: Johann Michael
- Carrier type: books
- Printing title:
 - Chur=Cölnischer Hof=Calendar Auf das Schalt=Jahr nach unseres Erlösers und Seeligmachers Jesu Christi Gnaden...
- Date: 1756
- Place: Bonn

Schemas

Model no1

• BINDING

- Size: 204 x 135 x 5
- Binding form: European binding,full binding, smooth spine
- Binding technique: case binding (adhesive case), sewn without supports
- Cover: black velvet
- Board material: paper board
- Bookblock edges: silvered at all edges
- Endleaves: bookcloth, brocade, silvercoloured
- BINDING DECORATION(?)
 - Decoration technique and material:
 - silver-tooled; small hand tool, straight-line tool
 - Form:
 - standard decoration; border line ornamenterat/de ramverk, centrepiece
 - Ornament and motif:
 - crown, rose, acanthus volute, bladverk, lambrequin
 - Decorative style: Neo-Rococo

Model no2

- Type of **decorated paper**:
 - brocade paper,
 - Brokatpapier
- Decoration by format: in-the-sheet decoration
- Decoration by number of colours: single-coloured
- Colours: green (color)
- Technique:
 - surface-colouring (techniques),
 - metal-leaf embossing
- Tool:
 - relief printing plates,
 - positive cut
- Place name: Augsbourg
- Maker: Johann Michael
- Carrier type: books
- Printing title:
 - Chur=Cölnischer Hof=Calendar Auf das Schalt=Jahr nach unseres Erlösers und Seeligmachers Jesu Christi Gnaden...
- Date: 1756
- Place: Bonn

Schemas

Model no1

• BINDING

- Size: 204 x 135 x 5
- Binding form: European binding,full binding, smooth spine
- Binding technique: case binding (adhesive case), sewn without supports
- Cover: black velvet
- Board material: paper board
- Bookblock edges: silvered at all edges
- Endleaves: bookcloth, brocade, silvercoloured
- BINDING DECORATION
 - Decoration technique and material:
 - silver-tooled; small hand tool, straight-line tool
 - Form:
 - standard decoration; border line ornamenterat/de ramverk, centrepiece
 - Ornament and motif:
 - crown, rose, acanthus volute, bladverk, lambrequin
 - Decorative style: Neo-Rococo

Model no2

- Type of **decorated paper**:
 - brocade paper,
 - Brokatpapier
- Decoration by format: in-the-sheet decoration
- Decoration by number of colours: single-coloured
- Colours: green (color)
- Technique:
 - surface-colouring (techniques),
 - metal-leaf embossing
- Tool:
 - relief printing plates,
 - positive cut
- Place name: Augsbourg
- Maker: Johann Michael
- Carrier type: books
- Printing title:
 - Chur=Cölnischer Hof=Calendar Auf das Schalt=Jahr nach unseres Erlösers und Seeligmachers Jesu Christi Gnaden...
- Date: 1756
- Place: Bonn

- Search across schemas/resources
 - More abstract model for representing schemas
 - Endleaves: bookcloth, brocade, silvercoloured
 - Type of decorated paper: brocade paper, Brokatpapier

- Search across schemas/resources
 - More abstract model for representing schemas
- Identify the *class*
 - ProBok endleaves:
 - Objects \rightarrow Book components \rightarrow Endleaves
 - Ligatus decorated papers:
 - Objects \rightarrow Book components

- Search across schemas/resources
 - More abstract model for representing schemas
- Identify the *class*
 - ProBok endleaves:
 - Objects \rightarrow Book components \rightarrow Endleaves
 - Ligatus decorated papers:
 - Objects \rightarrow Book components

made of: brocade made of: brocade

- ProBok endleaves:
 - Objects \rightarrow Book components \rightarrow Endleaves
- Ligatus decorated papers:
 - Objects → Book components



Q

Low precision - high recall

Class: Objects

- ProBok endleaves:
 - Objects \rightarrow Book components \rightarrow Endleaves
- Ligatus decorated papers:
 - Objects \rightarrow Book components

Gets all results including boxes, chests, burniture

• ProBok endleaves:

 \rightarrow Objects \rightarrow Book components \rightarrow Endleaves

Ligatus decorated papers:
 – Objects → Book components



Q

High precision - low recall

Sub-sub-class: Endleaves

• ProBok endleaves:

 \rightarrow Objects \rightarrow Book components \rightarrow Endleaves

Ligatus decorated papers:
 – Objects → Book components

misses Ligatus results

gets ProBok results

• ProBok endleaves:

— Objects → Book components → Endleaves

Ligatus decorated papers:
 – Objects → Book components

Google book components made of brocade paper

High precision - lower recall

Q

Sub-class: Components

• ProBok endleaves:

 \rightarrow Objects \rightarrow Book components \rightarrow Endleaves

• Ligatus decorated papers:

- Objects \rightarrow Book components

gets Ligatus results

gets ProBok results

Shared property

- Searching is possible because of the shared property
 - Book component:
 - has material
 - Endleaf:
 - has material
 - Object:
 - has material

Other shared properties

- has material: e.g. brocade paper
- made by: e.g. Sandy Cockerell
- of size: e.g. 30cm×20cm
- has colour: e.g. red, green, blue
- has location: e.g. London

Other shared properties

- has material: e.g. brocade paper
- made by: e.g. Sandy Cockerell
- of size: e.g. 30cm×20cm
- has colour: e.g. red, green, blue
- has location: e.g. London
- has pastedown (?): e.g. overall
 - not applicable to all components or objects

Other shared properties

- has material: e.g. brocade paper
- made by: e.g. Sandy Cockerell
- of size: e.g. 30cm×20cm
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RM CONCEPTUAL REFERENCE MODEL

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Home

Meeting on 24 - 26 February, 2016

International Journal on Digital Librari...

New version of the CRMgeo (version 1.2)...

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Compatible models & Collaborations 》

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What is the CIDOC CRM?

The **CIDOC Conceptual Reference Model (CRM)** provides definitions and a formal structure for describing the implicit and explicit concepts and relationships used in cultural heritage documentation.

The **CIDOC CRM** is intended to promote a shared understanding of cultural heritage information by providing a common and extensible semantic framework that any cultural heritage information can be mapped to. It is intended to be a common language for domain experts and implementers to formulate requirements for information systems and to serve as a guide for good practice of conceptual modelling. In this way, it can provide the "semantic glue" needed to mediate between different sources of cultural heritage information, such as that published by museums, libraries and archives.

The CIDOC CRM is the culmination of over 10 years work by the CIDOC Documentation Standards Working Group and CIDOC CRM SIG which are working groups of CIDOC. Since 9/12/2006 it is official standard ISO 21127:2006.

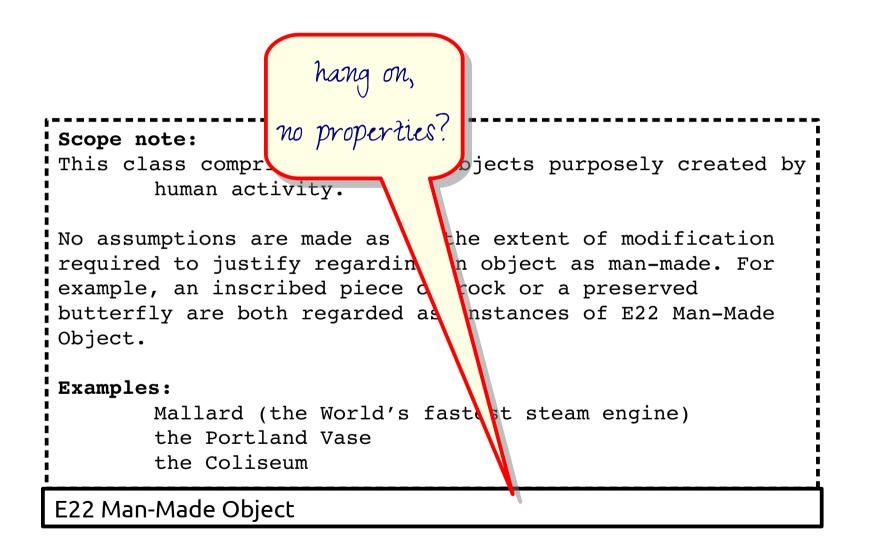
Who we are

Over many years, CIDOC and the CIDOC Documentation Standards Working Group (DSWG)have engaged in the creation of a general data model for museums, with a particular focus on information interchange. Until 1994 the product of these activities had been the CIDOC Relational Data Model. In the interim meeting in March 1996 in Crete, the DSWG decided to engage in an object-oriented approach in order to benefit from its expressive power and extensibility for dealing with the necessary diversity and complexity of data structures in the domain. This effort resulted in 1999 in the first complete edition of the "CIDOC Conceptual Reference Model" (CRM), a product of the intensive voluntary work of a variety of contributors. In order to exploit fully the potential of the CRM as a means of enabling information interchange and integration in the museum community and beyond, CIDOC decided in London 1999 to submit the CRM to ISO for standardization. ISO, in contrast to CIDOC, has the procedures and authority to create and declare well-defined, valid editions of international recommendations. (The CIDOC CRM has been accepted as working draft by ISO/TC46/SC4 in September 2000. Since 9/12/2006 it is official standard ISO 21127:2006.

- Formal entities (classes and sub-classes)
- Formal properties (and sub-properties)

```
Scope note:
This class comprises physical objects purposely created by
       human activity.
No assumptions are made as to the extent of modification
required to justify regarding an object as man-made. For
example, an inscribed piece of rock or a preserved
butterfly are both regarded as instances of E22 Man-Made
Object.
Examples:
       Mallard (the World's fastest steam engine)
       the Portland Vase
       the Coliseum
```

E22 Man-Made Object



```
Scope Note:
This class comprises all persistent physical items that are
        purposely created by human activity.
This class comprises man-made objects, such as a swords, and
        man-made features, such as rock art. No assumptions
        are made as to the extent of modification required to
        justify regarding an object as man-made. For example,
        a "cup and ring" carving on bedrock is regarded as
        instance of E24 Physical Man-Made Thing.
Examples:
        the Forth Railway Bridge (E22)
        the Channel Tunnel (E25)
        the Historical Collection of the Museum Benaki in
        Athens (E78)
                                P62 depicts: E1 CRM Entity
E24 Physical Man-Made Thing
                                P65 shows visual item: E36 Visual Item
 E22 Man-Made Object
```

P62 depicts: E1 CRM Entity P65 shows visual item: E36 Visual Item

E22 Man-Made Object

 P44 has condition: E3 Condition State P45 consists of: E57 Material P46 is composed of: E18 Physical Thing P49 has former or current keeper: E39 Actor P50 has current keeper: E39 Actor P51 has former or current owner: E39 Actor P52 has current owner: E39 Actor P53 has former or current location: E53 Place P128 carries: E90 Symbolic Object P156 occupies: E53 Place
P62 depicts: E1 CRM Entity P65 shows visual item: E36 Visual Item

P44 has condition: E3 Condition State P45 consists of: E57 Material P46 is composed of: E18 Physical Thing P49 has former or current keeper: E39 Actor P50 has current keeper: E39 Actor P51 has former or current owner: E39 Actor P52 has current owner: E39 Actor P53 has former or current location: E53 Place P128 carries: E90 Symbolic Object P156 occupies: E53 Place P62 depicts: E1 CRM Entity P65 shows visual item: E36 Visual Item

E22 Man-Made Object

E72 Legal object	P104 is subject to: E30 Right P105 right held by: E39 Actor
E18 Physical Thing	P44 has condition: E3 Condition State P45 consists of: E57 Material P46 is composed of: E18 Physical Thing P49 has former or current keeper: E39 Actor P50 has current keeper: E39 Actor P51 has former or current owner: E39 Actor P52 has current owner: E39 Actor P53 has former or current location: E53 Place P128 carries: E90 Symbolic Object P156 occupies: E53 Place
E24 Physical Man-Made Thing	P62 depicts: E1 CRM Entity P65 shows visual item: E36 Visual Item
E22 Man-Made Object	

P104 is subject to: E30 Right P105 right held by: E39 Actor P44 has condition: E3 Condition State P45 consists of: E57 Material P46 is composed of: E18 Physical Thing P49 has former or current keeper: E39 Actor P50 has current keeper: E39 Actor P51 has former or current owner: E39 Actor P52 has current owner: E39 Actor P53 has former or current location: E53 Place P128 carries: E90 Symbolic Object P156 occupies: E53 Place P62 depicts: E1 CRM Entity P65 shows visual item: E36 Visual Item

E22 Man-Made Object

E1 CRM Entity	P1 is identified by: E41 Appellation P2 has type: E55 Type P3 has note: E62 String P48 has preferred identifier: E42 Identifier P137 exemplifies: E55 Type
E77 Persistent Item	
E70 Thing	P43 has dimension: E54 Dimension P101 had as general use: E55 Type P130 shows features of: E70 Thing
E72 Legal object	P104 is subject to: E30 Right P105 right held by: E39 Actor
E18 Physical Thing	P44 has condition: E3 Condition State P45 consists of: E57 Material P46 is composed of: E18 Physical Thing P49 has former or current keeper: E39 Actor P50 has current keeper: E39 Actor P51 has former or current owner: E39 Actor P52 has current owner: E39 Actor P53 has former or current location: E53 Place P128 carries: E90 Symbolic Object P156 occupies: E53 Place
E24 Physical Man-Made Thing E22 Man-Made Object	P62 depicts: E1 CRM Entity P65 shows visual item: E36 Visual Item

	P1 is identified by: E41 Appellation P2 has type: E55 Type P3 has note: E62 String P48 has preferred identifier: E42 Identifier P137 exemplifies: E55 Type
	P43 has dimension: E54 Dimension P101 had as general use: E55 Type P130 shows features of: E70 Thing
E72 Legal object	P104 is subject to: E30 Right P105 right held by: E39 Actor
E18 Physical Thing	 P44 has condition: E3 Condition State P45 consists of: E57 Material P46 is composed of: E18 Physical Thing P49 has former or current keeper: E39 Actor P50 has current keeper: E39 Actor P51 has former or current owner: E39 Actor P52 has current owner: E39 Actor P53 has former or current location: E53 Place P128 carries: E90 Symbolic Object P156 occupies: E53 Place
E24 Physical Man-Made Thing	P62 depicts: E1 CRM Entity P65 shows visual item: E36 Visual Item
E22 Man-Made Object	

- Help design documentation databases
 - emphasis on the event



4. ENDLEAVES	MS ARABICA 174
1. LEFT	RIGHT
Yes No INTEGRAL SEPARATE outermost gathering No. 2 outermost gathering 1 Pall size Undersize Extended Deckles 2. MATERIAL MS waste Deckles 2. MATERIAL Syriac Syriac PAPYRUS Greek Syriac Western Hebrew Eastern Latin NK Other Polished MK Printed waste Matara Black letter Roman/Italic Mastara Black letter Roman/Italic NK Other Other	Yes No NK INTEGRAL SEPARATE No. P.IO Integral Separate outermost gathering Integral Integral Separate outermost gathering Integral Integral Integral PAPER Integral Integral Integral Integral Western Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integral Integr
Same as text Severity Sound Extent Severity	Same as text RIGHT Extent Severity Worn Ragged Pleating Rodent Losses Other Detached/loose
Paper Parchment NK Western See P.O Burnished Other 5. ADDED ENDLEAVES CONDITION LEFT	RIGHTYesNo PaperParchmentNK Western EasternOther Burnished RIGHT
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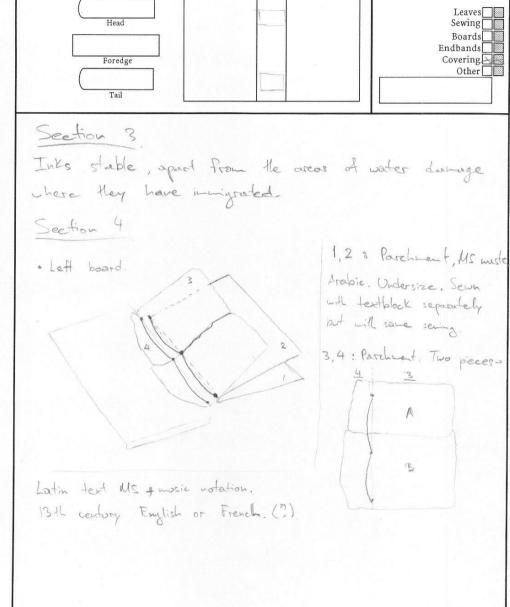
Re-examination required of:

TITLING

MS ARABICA 174

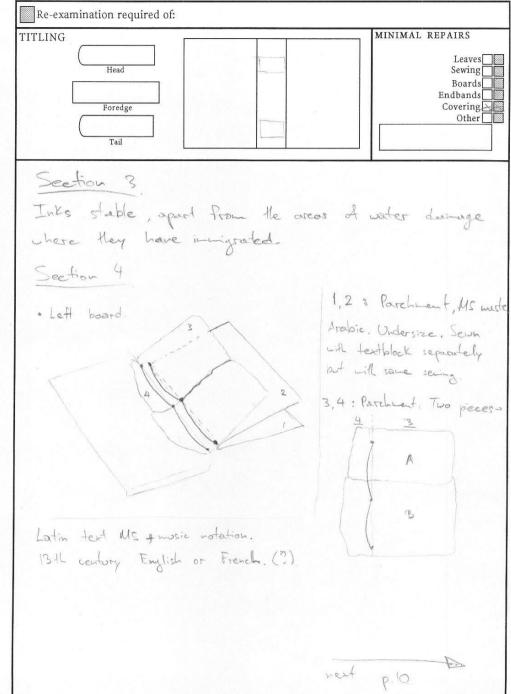
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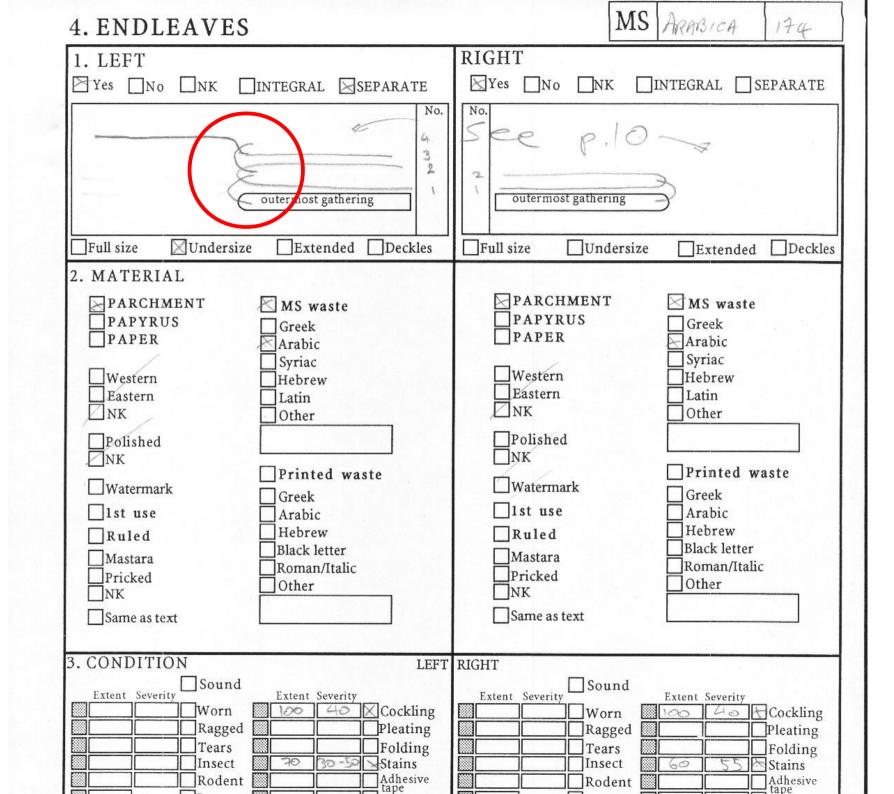
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4. ENDLEAVES	MS ARABICA 174
1. LEFT	RIGHT
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3. CONDITION LEFT Extent Severity Sound Extent Severity Worn Worn Wor Ragged Pleating Tears Folding Insect Poission Losses Other Detached/loose Detached/loose	RIGHT Extent Severity Worn Ragged Ragged Pleating Folding Rodent Losses Detached/loose
4.ADDED ENDLEAVES Yes No LEFT Paper Parchment NK Western Cher Eastern Other Burnished	RIGHT Yes No Paper Parchment NK Western Eastern Other Burnished
5. ADDED ENDLEAVES CONDITION LEFT Sound Extent Severity Worn Ragged Pleating Folding Insect Rodent Losses Detached/loose	RIGHT Sound Extent Severity Sound Extent Severity Cockling Cocklin

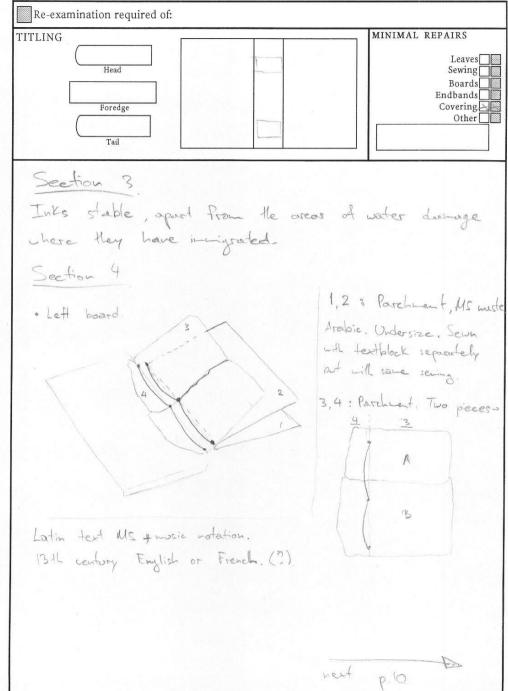
MS ARABICA 174





4. ENDLEAVES	MS ARABICA 174
1. LEFT	RIGHT
∑yes □N0 □NK □INTEGRAL ⊠SEPARATE	⊠Yes □No □NK □INTEGRAL □SEPARATE
No.	No. See P.10 outermost gathering
☐ Full size	Full size Undersize Extended Deckles
PARCHMENT MS waste PAPYRUS Greek PAPER Arabic Syriac Syriac Western Hebrew Eastern Latin NK Other Polished Strinted waste Watermark Greek Ist use Arabic Mastara Black letter Pricked Other NK Other	PARCHMENT MS waste PAPYRUS Greek PAPER Arabic Syriac Hebrew Eastern Latin NK Other Polished Greek Ist use Arabic Mastara Black letter Pricked Other Same as text Other
Sound Extent Severity Extent Severity Worn Ragged Pleating Tears Folding Insect Pleating Losses Other Detached/loose Other	RIGHT Extent Severity Sound Extent Severity Worn Ragged Ragged Pleating Ragged Rodent Losses Other Detached/loose
Paper Parchment NI Western See P.O Eastern Other Burnished	RIGHTYes No PaperParchmentNK Western EasternOther Burnished
5. ADDED ENDLEAVES CONDITION LEFT Sound Extent severity Worn Image: Condition of the severity Ragged Pleating Tears Folding Insect Image: Condition of the severity Sound Insect Sound Adhesive Sound Losses Detached/loose Image: Condition of the severity	RIGHT Severity Sound Extent Severity Korn Ragged Ragged Pleating Ragged Insect Rodent Losses Detached/loose

MS ARABICA 174



4. ENDLEAVES	MS ARABICA 174
1. LEFT ⊠Yes □no □nk □integral ⊠separate	RIGHT
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2. MATERIAL	
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3. CONDITION LEFT Severity Sound Extent Severity Worn Cockling Ragged Pleating Insect Polding Losses Other Detached/loose	RIGHT Severity Sound Extent Severity Worn Cockling Ragged Pleating Folding Rodent Losses Detached/loose
4.ADDED ENDLEAVES Yes No LEFT Paper Parchment NK Western See P.O Eastern Other Burnished	RIGHTYes No PaperParchmentNK Western EasternOther Burnished
5. ADDED ENDLEAVES CONDITION LEFT Sound Extent Severity Worn 20 Cockling Ragged Pleating Insect 20 Stains Sound Adbesive tase Losses Other Detached/loose Insect	RIGHTSoundSound

MS ARABICA 174

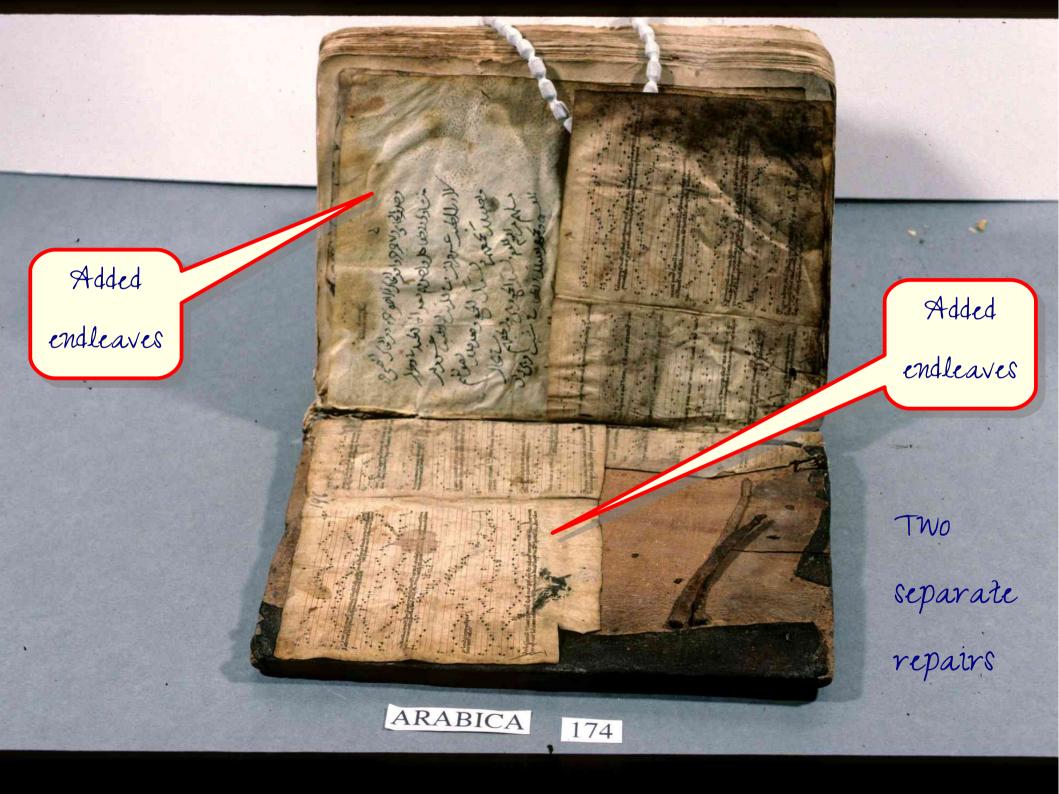
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Section 3	
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	ill same sering.
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	B
Latin text MS & music notation. 13th century English or French. (?).	4
next	p.10
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Section 3 Inks stable, apart from the areas of water damage where they have imagented. Section 4 1,2 3 Parchment, MS muste · Left board. Mapie. Undersize. Sewn. with textblock separately put will same sering. 3,4 : Parchent. Two pieces > Latin text MS # mosic notation. 13th century English or French. (?).

Section 3 Inks stable, apart from the areas of water desinage where they have imagented. Section 4 1,2 & Parchment, MS muste · Left board. Arapic. Undersize. Sewn. with textblock separately but will save seeing. 3,4 : Parchent. Two pieces-Latin text MS # mosic notation. 13th century English or French. (?).





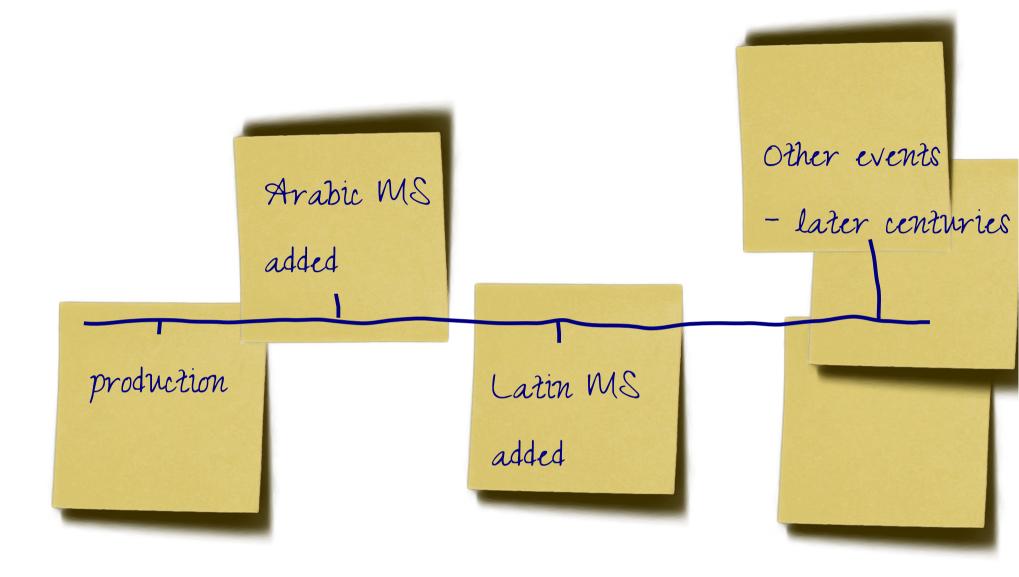


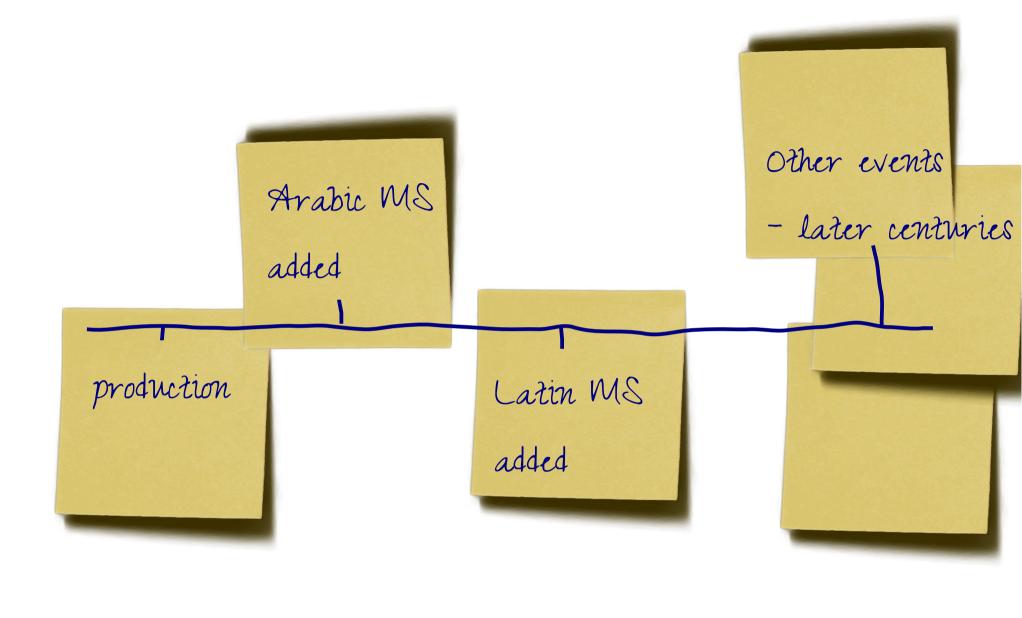




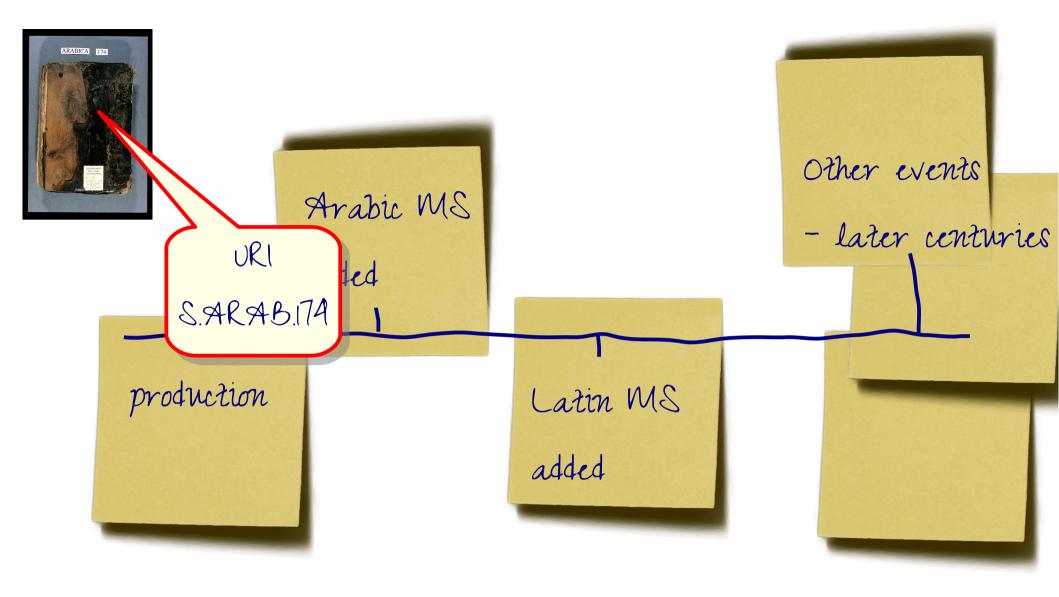




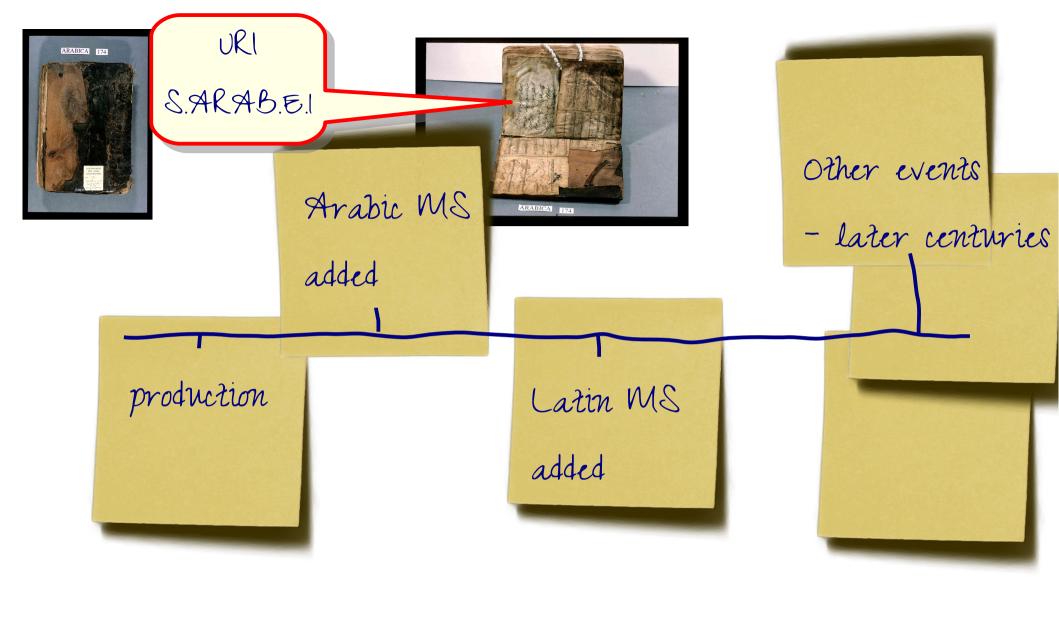




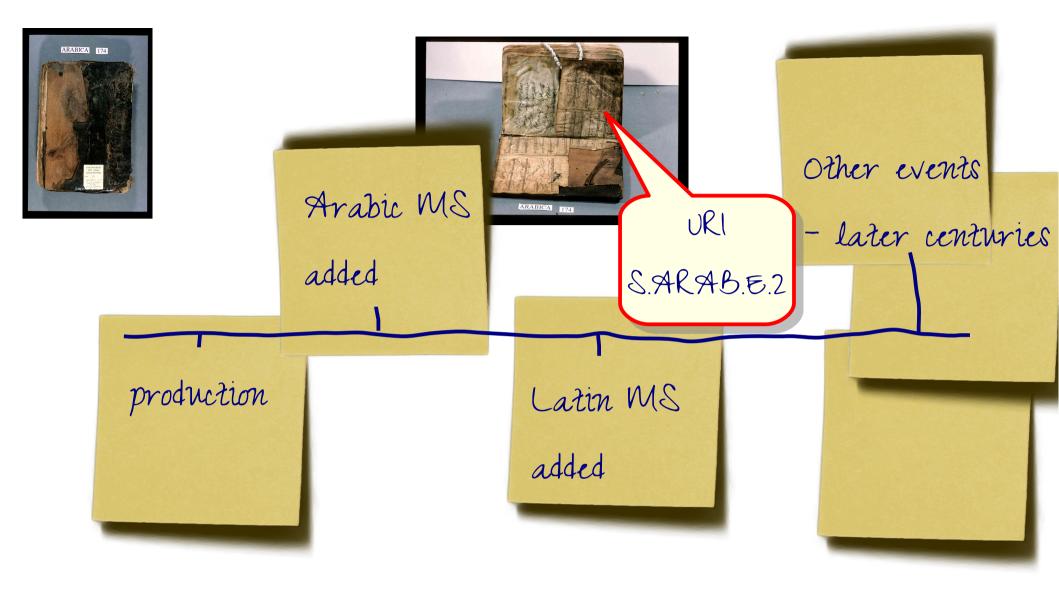














E2-Temporal Entity	E77-Persistent Item
E4Period	E70Thing
E5Event	E72Legal Object
E7Activity	E18Physical Thing
E11Modification	E24Physical Man-Made Thing
E12Production	E90Symbolic Object
E79Part Addition	E71Man-Made Thing
E13Attribute Assignment	E24Physical Man-Made Thing
E65Creation	E28Conceptual Object
E63Beginning of Existence	E89Propositional Object
E12Production	E30Right
E65Creation	E73Information Object
E64End of Existence	E90Symbolic Object
	E41Appellation
	E73Information Object
	Е55Туре
	E39Actor
	E74Group

E52-Time-Span E53-Place

E54-Dimension

E2-Temporal Entity
E4Period
E5Event
E7Activity
E11Modification
E12Production
E79Part Addition
E13Attribute Assignment
E65Creation
E63Beginning of Existence
E12Production
E65Creation
E64End of Existence

E77-Persistent Item

E70--Thing

E72---Legal Object

E18----Physical Thing

E24-----Physical Man-Made Thing

E90 ----Symbolic Object

E71---Man-Made Thing

E24----Physical Man-Made Thing

E28----Conceptual Object

E89-----Propositional Object

E30-----Right

E73-----Information Object

E90-----Symbolic Object

E41-----Appellation

E73-----Information Object

Е55----Туре

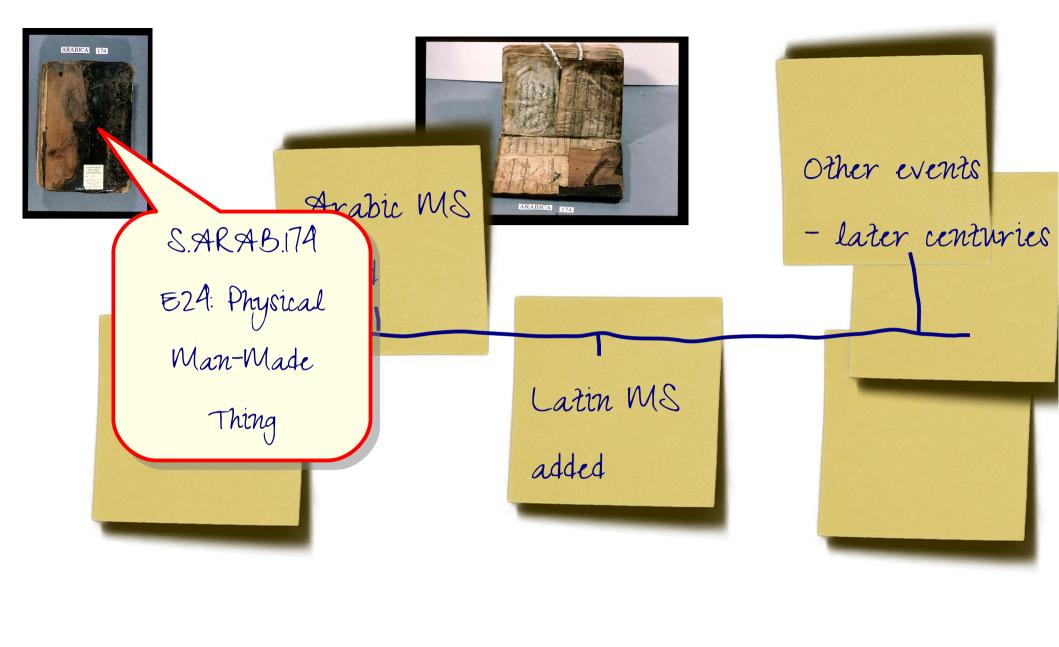
E39--Actor

E74---Group

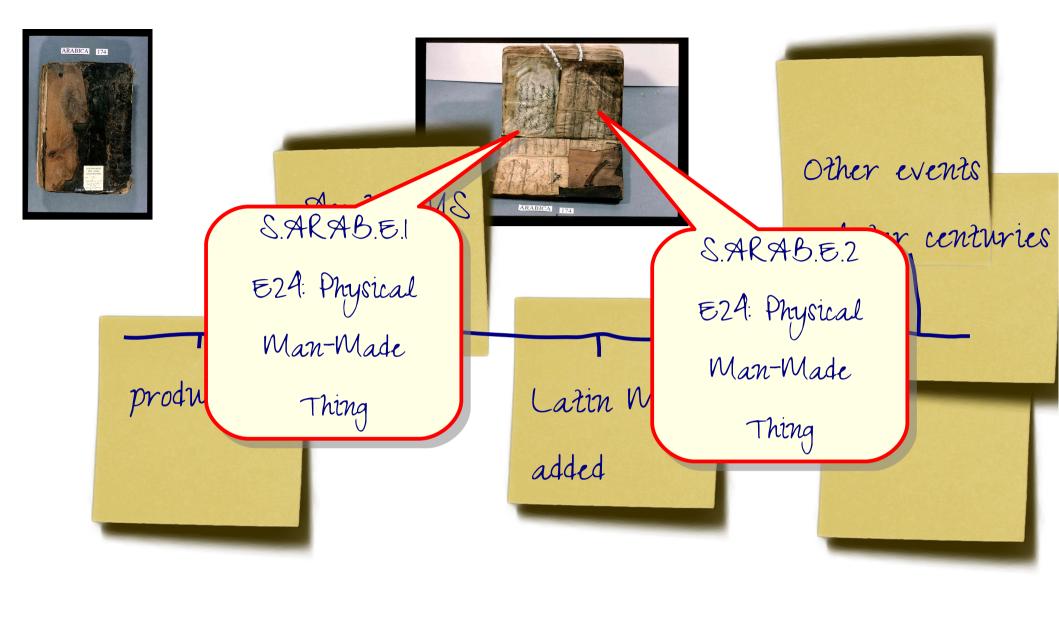
E52-Time-Span

E53-Place

E54-Dimension







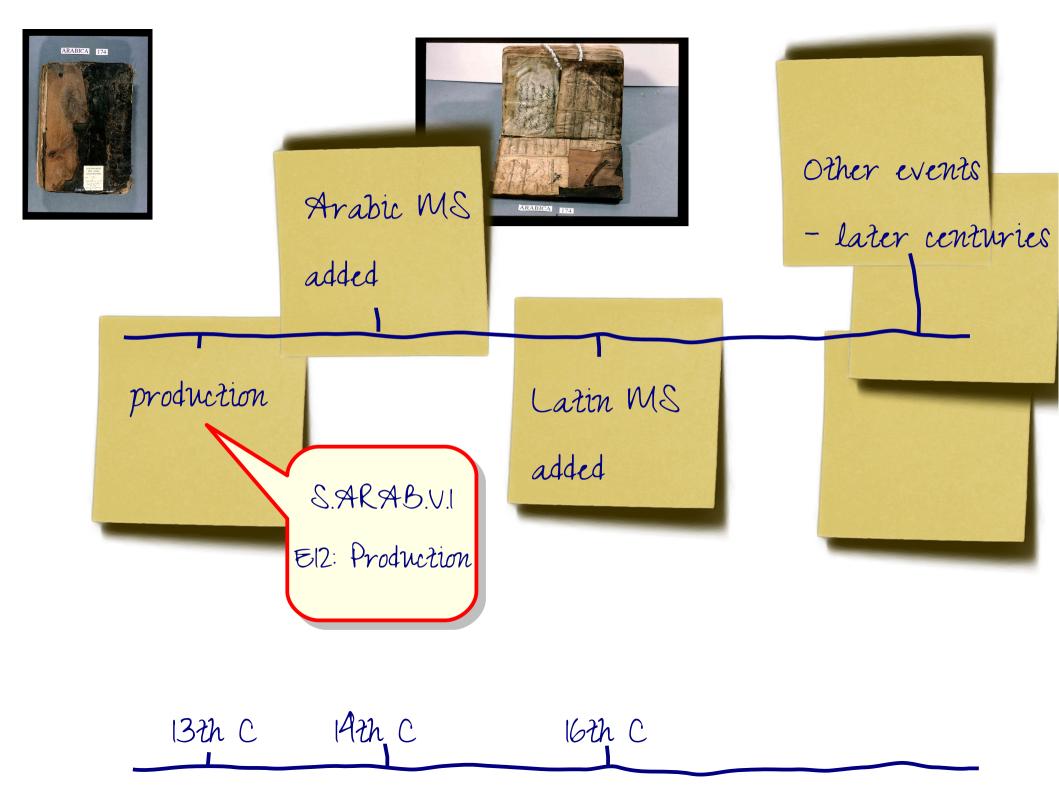
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E2-Temporal Entity	E77-Persistent Item
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	E73Information Object
	Е55Туре
	E39Actor
	E74Group

E52-Time-Span

E53-Place

E54-Dimension

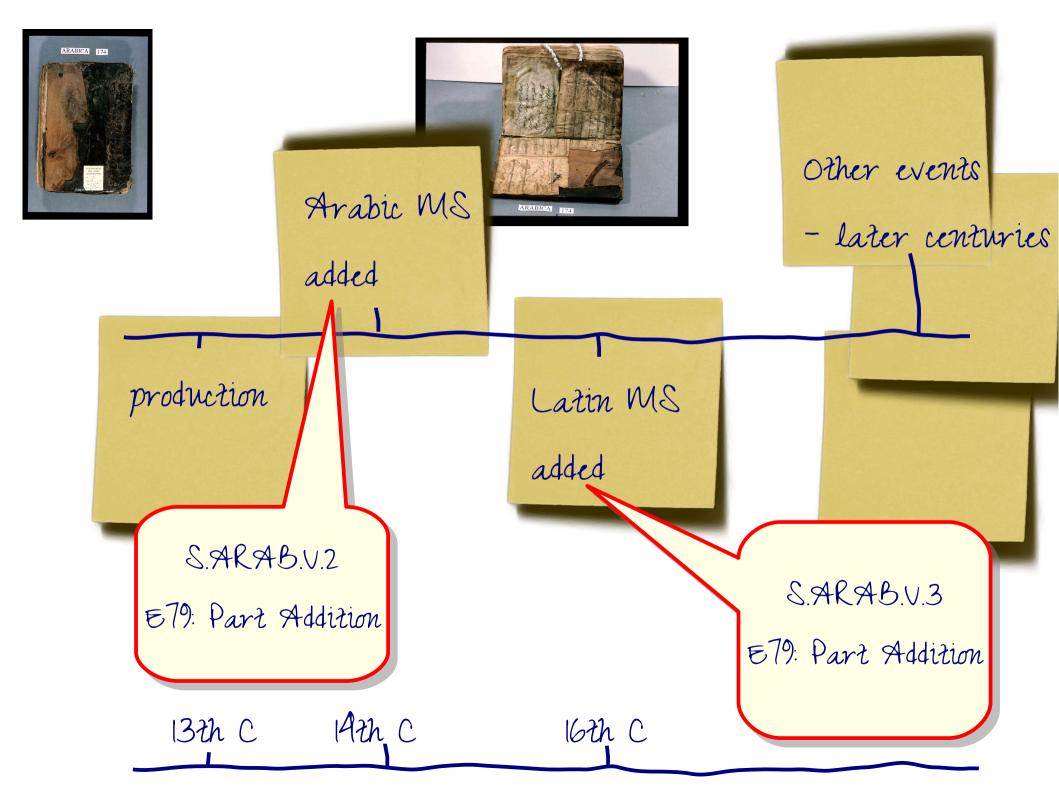


E2-Temporal Entity	E77-Persistent Item
E4Period	E70Thing
E5Event	E72Legal Object
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E65Creation	E28Conceptual Object
E63Beginning of Existence	E89Propositional Object
E12Production	E30Right
E65Creation	E73Information Object
E64End of Existence	E90Symbolic Object
	E41Appellation
	E73Information Object
	Е55Туре
	E39Actor
	E74Group

E52-Time-Span

E54-Dimension

E53-Place



E12 Production

 P108 has produced: E24 Physical Man-Made Thing

E2-Temporal Entity	E77-Persistent Item
E4Period	E70Thing
E5Event	E72Legal Object
E7Activity	E18Physical Thing
E11Modification	E24Physical Man-Made Thing
E12Production	E90Symbolic Object
E79Part Addition	E71Man-Made Thing
E13Attribute Assignment	E24Physical Man-Made Thing
E65Creation	E28Conceptual Object
E63Beginning of Existence	E89Propositional Object
E12Production	E30Right
E65Creation	E73Information Object
E64End of Existence	E90Symbolic Object
	E41Appellation
	E73Information Object
	Е55Туре
	E39Actor
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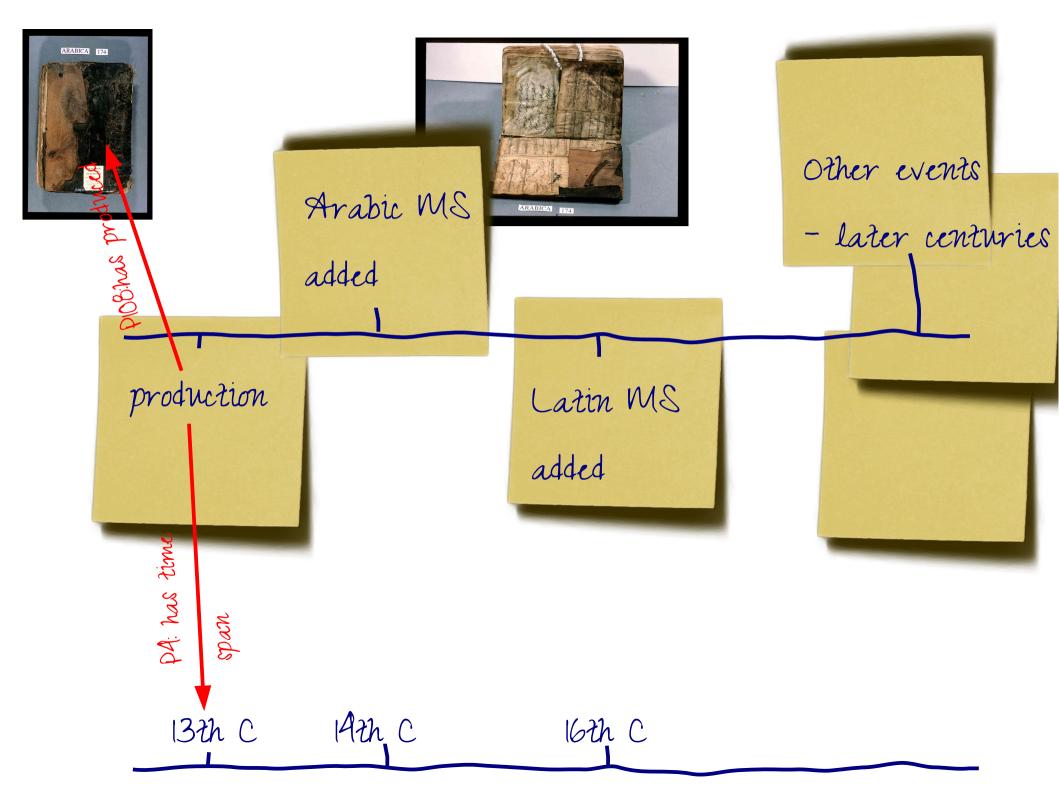
E52-Time-Span

E54-Dimension

E53-Place

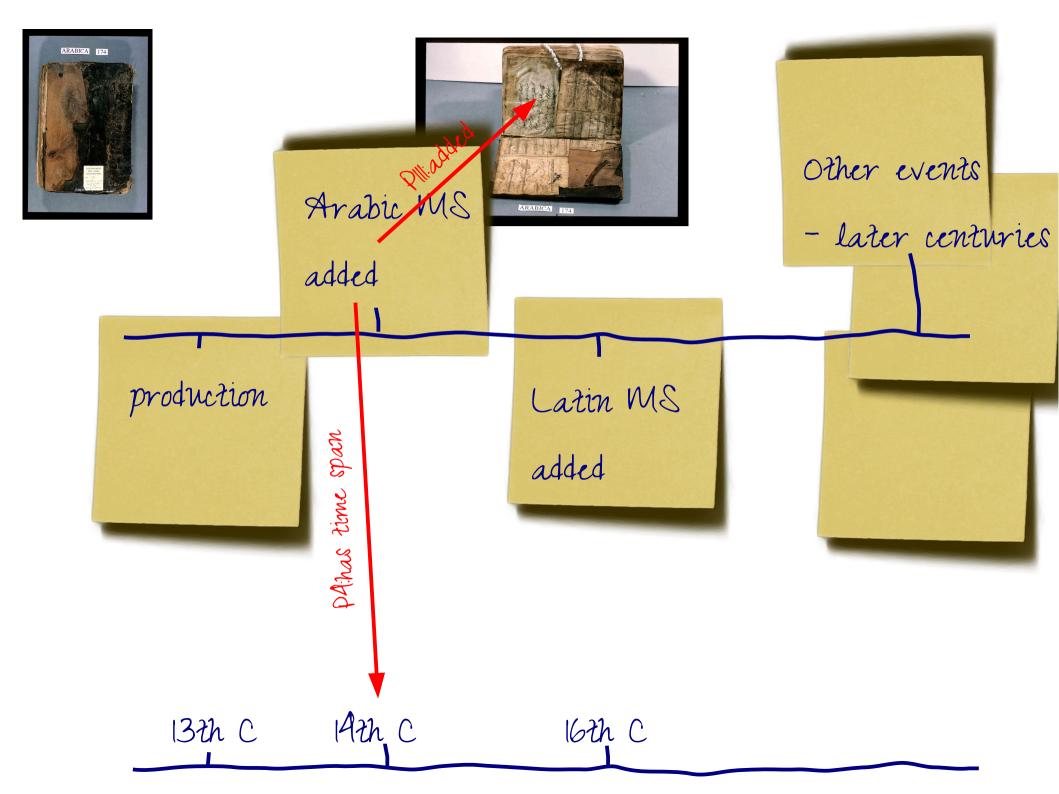
E12 Production

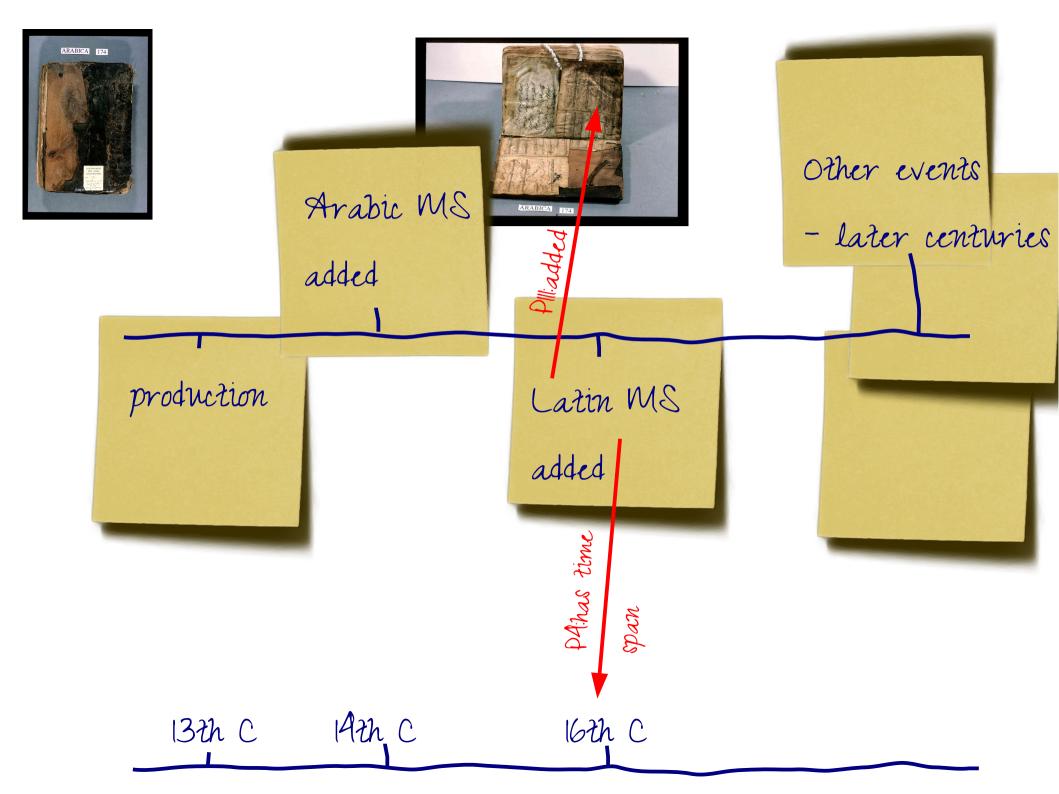
- P108 has produced: E24 Physical Man-Made Thing
- From parents:
 - P14 carried out by: E39 Actor
 - P33 used specific technique: E29 Design or Procedure
 - P7 took place at: E53 Place
 - P4 has time-span: E52 Time-Span



E79 Part Addition

- P111 added: E18 Physical Thing
- From parents:
 - P14 carried out by: E39 Actor
 - P33 used specific technique: E29 Design or Procedure
 - P7 took place at: E53 Place
 - P4 has time-span: E52 Time-Span



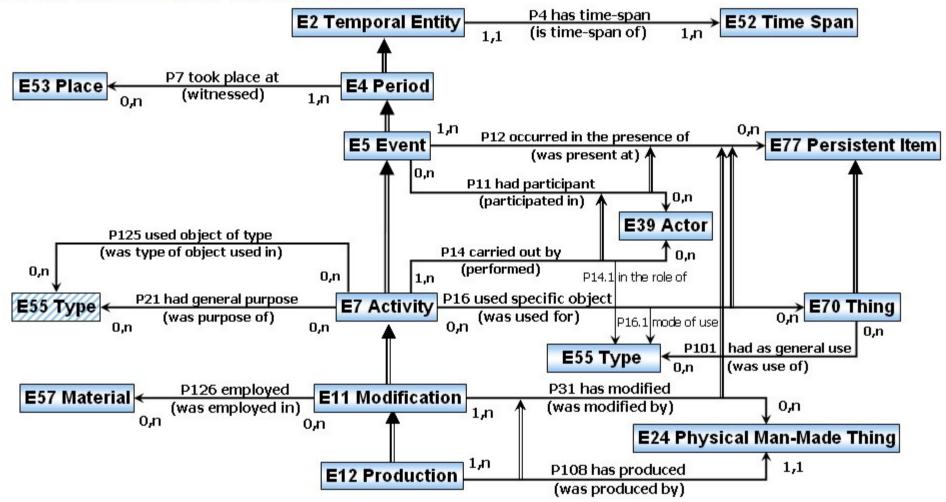




CRM-based documentation

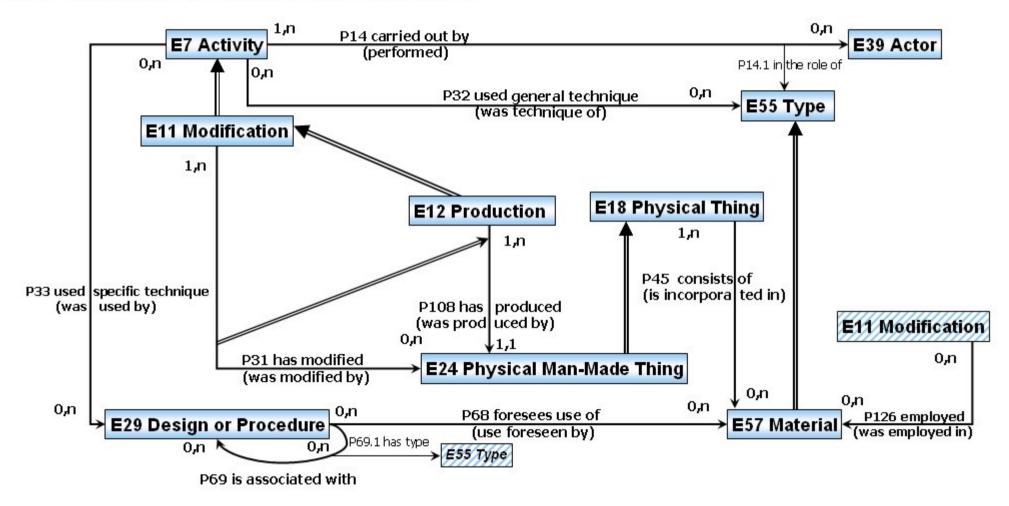
Technology

OBJECT PRODUCTION INFORMATION



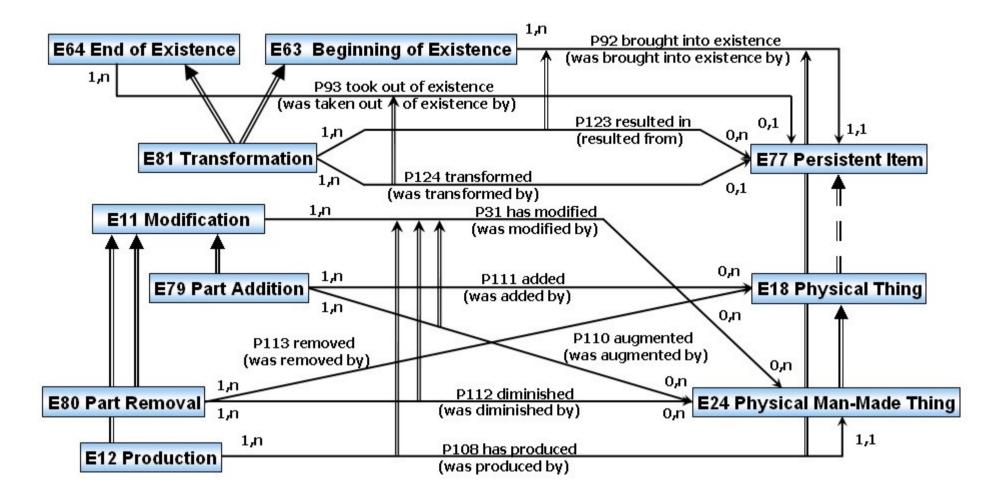
Technology

MATERIAL AND TECHNIQUE INFORMATION

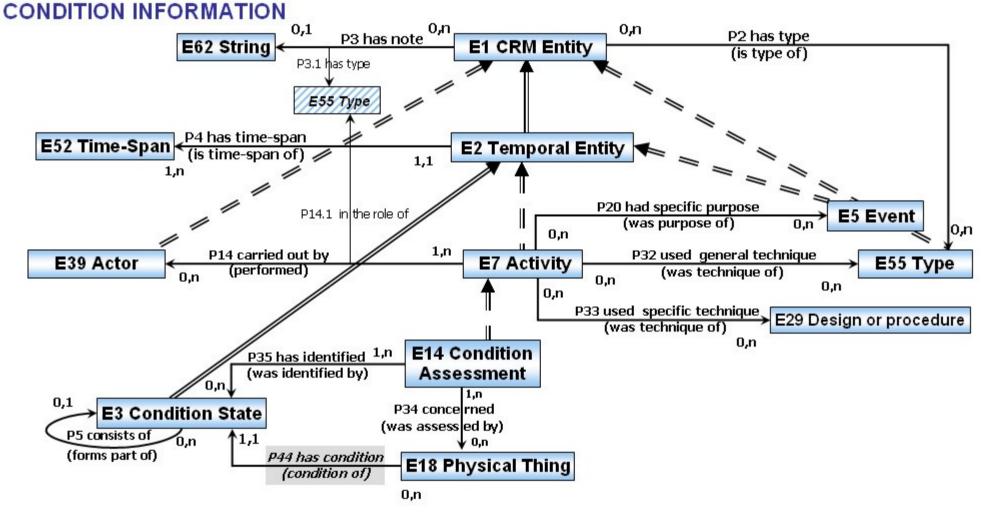


Technology

CHANGING THING



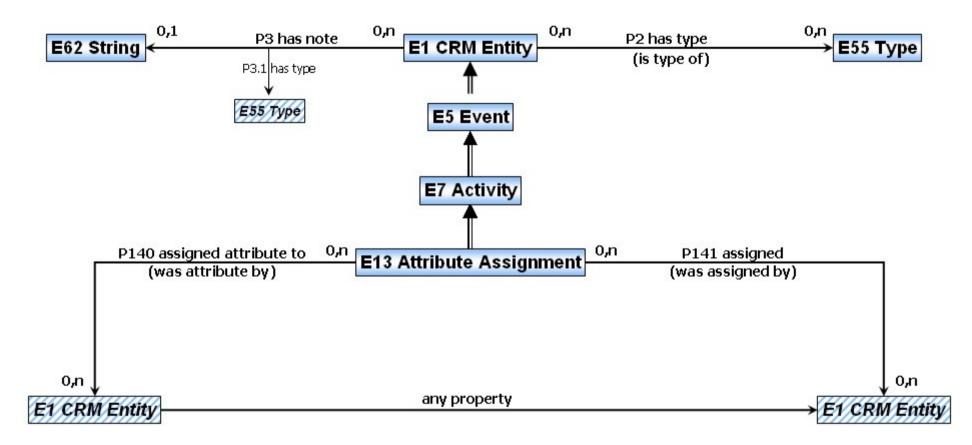
Condition(?) - Timespace volume?



- the "Amber Room" in Tsarskoje Selo being completely reconstructed from summer 2003 until now
- the Peterhof Palace near Saint Petersburg being in ruins from 1944 1946

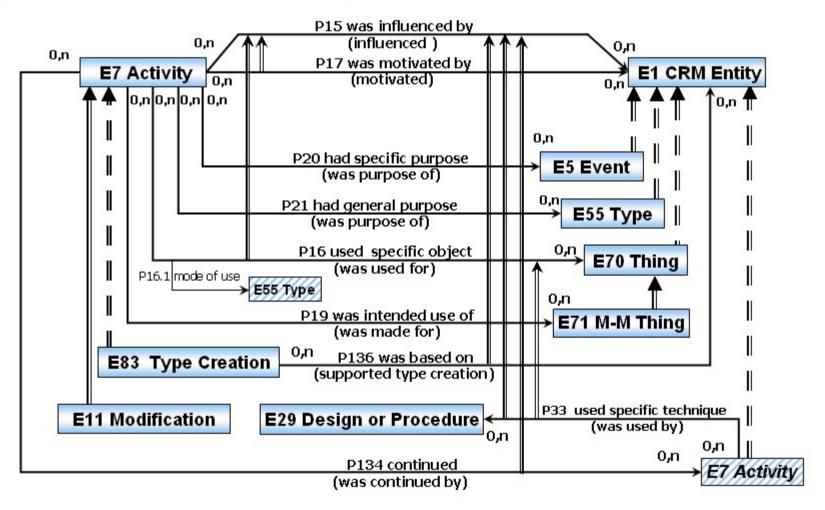
Value(?)

ATTRIBUTE ASSIGNMENT

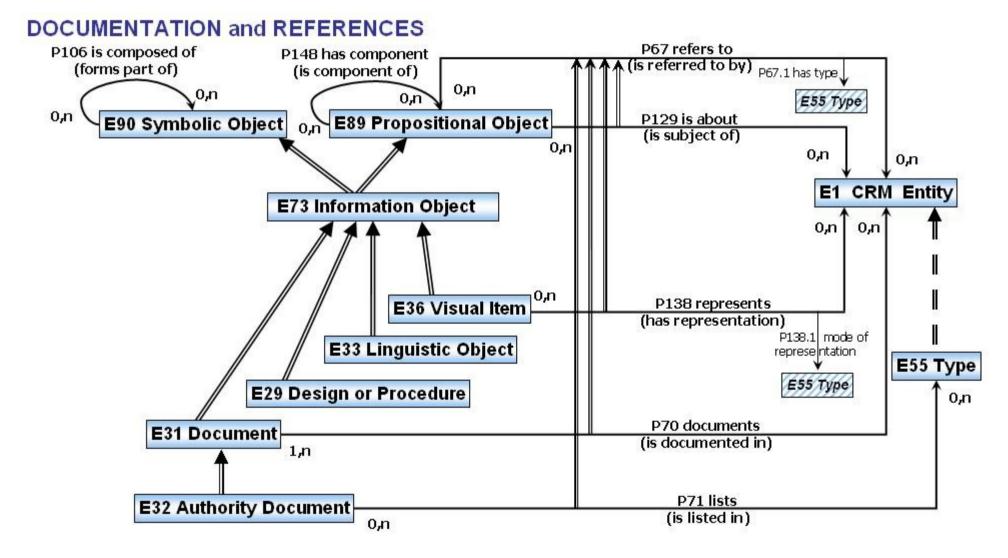


Objectives and plans for treatment (?)

PLANNED ACTIVITIES 1 (design, purpose, use)

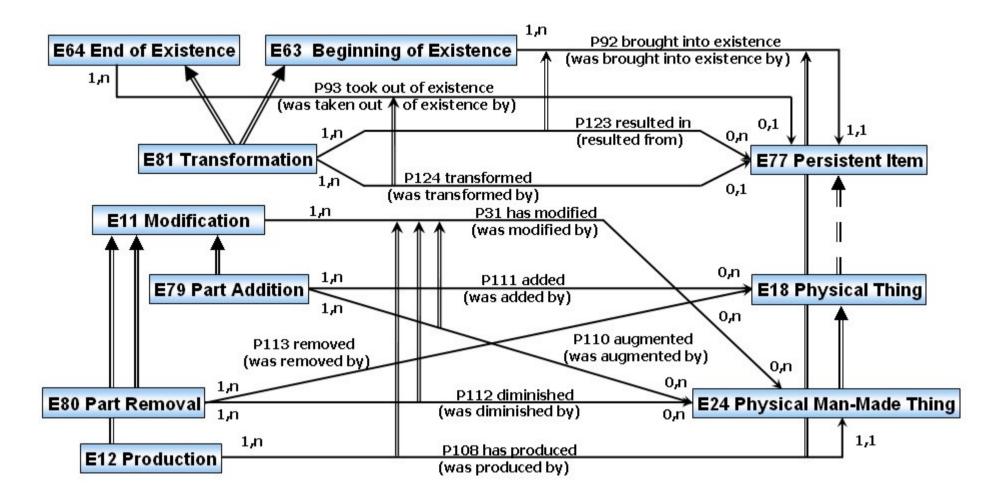


Objectives and plans for treatment (?)



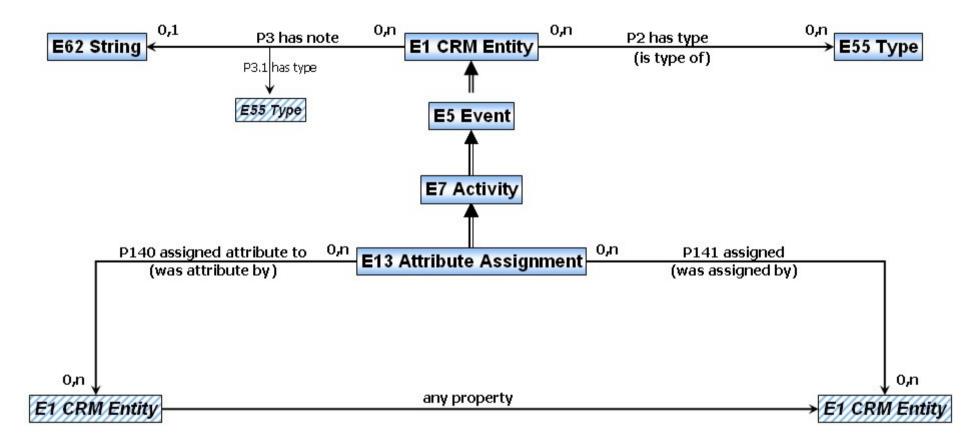
Treatment

CHANGING THING

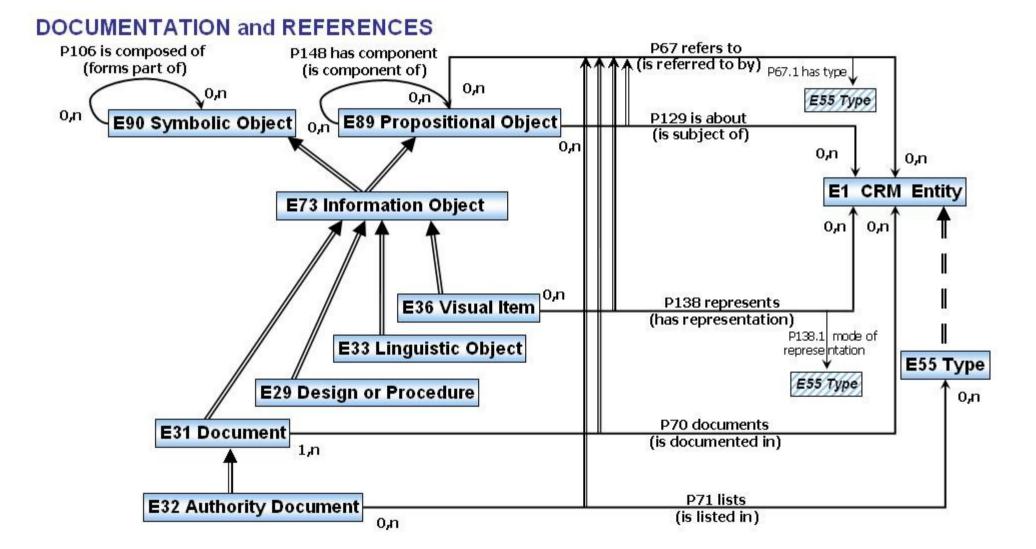


Treatment assessment (?)

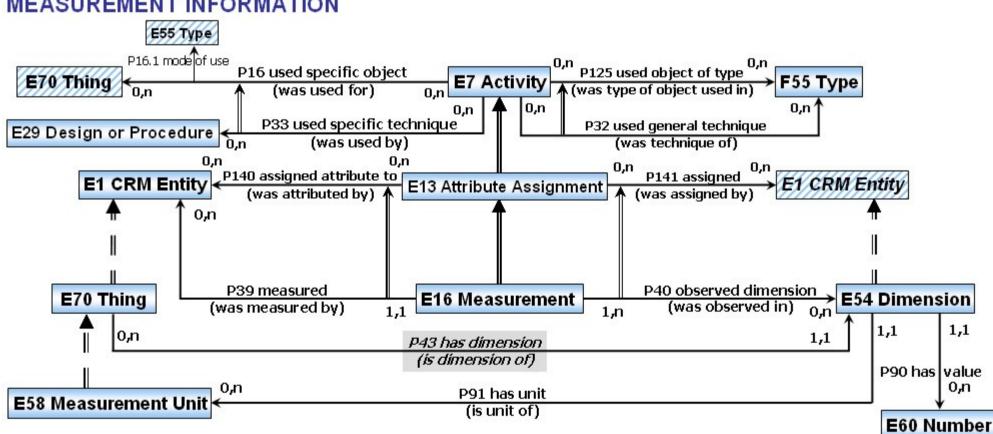
ATTRIBUTE ASSIGNMENT



Purpose of documentation (?)



Observations



MEASUREMENT INFORMATION

Observations (CRM_{sci})

Property id	Property Name	Entity – Domain	Entity - Range
01	diminished (was diminished by)	S1 Matter Removal	S10 Material Substantial
02	removed (was removed by)	S1 Matter Removal	S11 Amount of Matter
03	sampled from (was sample by)	S2 Sample Taking	S10 Material Substantial
04	sampled at (was sampling location of)	S2 Sample Taking	E53 Place
05	removed (was removed by)	S2 Sample Taking	S13 Sample
06	forms former or current part of (has former or current part)	S12 Amount of Fluid	S14 Fluid Body
07	contains or confines (is contained or confined)	E53 Place	E53 Place
08	observed (was observed by)	S4 Observation	S15 Observable Entity
09	observed property type (property type was observed by)	S4 Observation	S9 Property Type
010	assigned dimension (dimension was assigned by)	S6 Data Evaluation	E54 Dimension
011	described (was described by)	S6 Data Evaluation	S15 Observable Entity
012	has dimension (is dimension of)	S15 Observable Entity	E54 Dimension
013	triggers (is triggered by)	E5 Event	E5 Event
014	initializes (is initialized by)	E5 Event	S16 State
015	occupied (was occupied by)	S10 Material Substantial	E53 Place
016	observed value (value was observed by)	S4 Observation	E1 CRM Entity
017	generated (was generated by)	S17 Physical Genesis	E18 Physical Thing
018	altered (was altered by)	S18 Alteration	E18 Physical Thing
019	has found object (was object found by)	S19 Encounter Event	E18 Physical Thing
O20	sampled from type of part (type of part was sampled by)	S2 Sample Taking	Е55 Туре
021	has found at (witnessed)	S19 Encounter Event	E53 Place
022	partly or completely contains (is part of)	S22 Segment of Matter	S20 Physical Feature
023	is defined by (defines)	S22 Segment of Matter	E92 Spacetime Volume
024	measured (was measured by)	S21 Measurement	S15 Observable Entity

Observations

- Positive negative
 - categorical, i.e. E55 Type
 - negative properties
- Uncertainty (?)

Research info + Justification

- Deductions from:
 - Expert advice
 - Bibliographical research

Deduction

- All 14th century Greek MSs endbands are woven on internal core.
 - expert advice
- This is a 14th century Greek MS.
 - observation of evidence / expert advice
- Therefore:
 - This MS's endband is woven on an internal core.

Induction (open world)

- I have observed 3000 Greek MS endbands (I have a good sample).
- From the 14th century onwards they are woven on internal core.

- Therefore:
 - All 14th century endbands or later are woven on a core (I have strong evidence but cannot be sure).

Deduction

- Maintaining original components of endbands is ethical.
 - bibliographical research
- This component is original to the endband.
 - observation

• Therefore:

- This component needs to be kept during conservation.

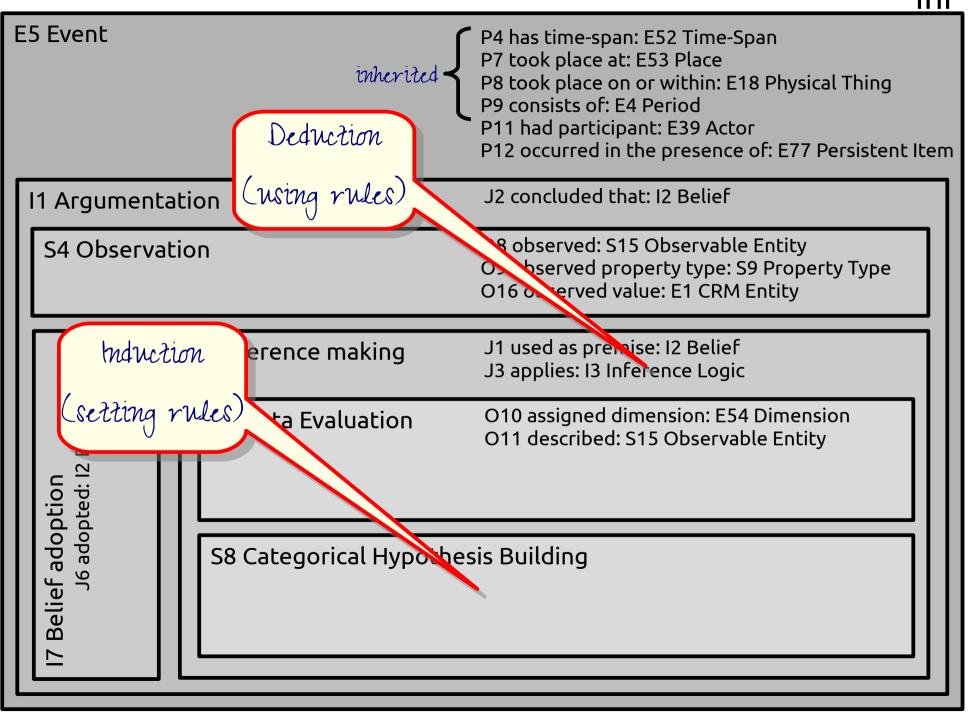
Research info + Justification: CRM

Property id	Property name	Entity - Domain	Entity - Range
J1	used as premise (was premise for)	15 Inference Making	I2 Belief
J2	concluded that (was concluded by)	I1 Argumentation	I2 Belief
J3	applies (was applied by)	15 Inference Making	13 Inference Logic
J4	that (is subject of)	I2 Belief	14 Proposition Set
J5	holds to be (is held by)	I2 Belief	I6 Belief Value
J6	adopted (adopted by)	I7 Belief Adoption	I2 Belief

Research info + Justification: CRM

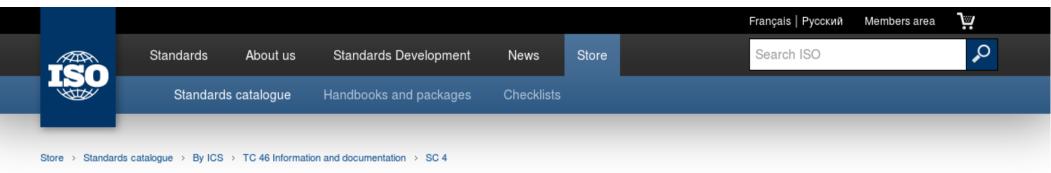
E5 Event	inherited {	P4 has time-span: E52 Time-Span P7 took place at: E53 Place P8 took place on or within: E18 Physical Thing P9 consists of: E4 Period P11 had participant: E39 Actor P12 occurred in the presence of: E77 Persistent Item
I1 Argumenta	ation	J2 concluded that: I2 Belief
S4 Observa	tion	O8 observed: S15 Observable Entity O9 observed property type: S9 Property Type O16 observed value: E1 CRM Entity
adoption adopted: 12 Belief	15 Inference making	J1 used as premise: I2 Belief J3 applies: I3 Inference Logic
	S6 Data Evaluation	O10 assigned dimension: E54 Dimension O11 described: S15 Observable Entity
I7 Belief adoption J6 adopted:	S8 Categorical Hypothe	sis Building

Research info + Justification: CRM



CIDOC-CRM

- ISO standard etc.
- CRM extensions



ISO 21127:2014[®]

Information and documentation -- A reference ontology for the interchange of cultural heritage information

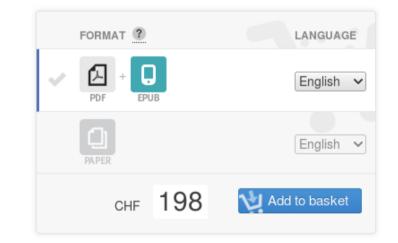
Abstract

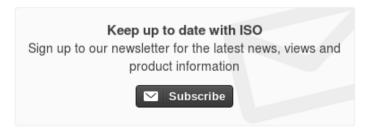
Preview ISO 21127:2014

ISO 21127:2014 establishes guidelines for the exchange of information between cultural heritage institutions. In simple terms, this can be defined as the information managed by museums, libraries, and archives.

The intended scope of this ISO 21127:2014 is defined as the exchange and integration of heterogeneous scientific documentation relating to museum collections. This definition requires further elaboration.

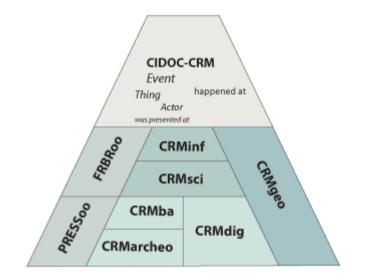
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TC/SC: ISO/TC 46/SC 4		Number of Pages: 104	





CRM extensions

- CRM_{dig}: a model for provenance metadata
- **CRM**_{geo}: a Spatiotemporal model
- CRM_{sci}: a Scientific Observation model
- CRM_{archaeo}: an Excavation model
- **CRM**_{inf}: an Argumentation model
- **MarineTLO**: a top-level ontology for the Marine Domain



CRM and RDF

- RDF triples
- Enlargen
- 3M, Karma
- CMSs (e.g. Drupal)

Summary of issues

- Value
- Planned work
- Success assessment
- Purpose of documentation
- Justification of work