

Francesco Beretta
(CNRS UMR5190 LARHRA – Université de Lyon)

La conceptualisation de l'information factuelle

Université de Neuchâtel
Septembre-décembre 2020
(version 2.2)

« In 1592, he [Galileo Galilei] moved to the University of Padua where he taught geometry, mechanics, and astronomy until 1610 ».

[https://en.wikipedia.org/wiki/Galileo_Galilei#Reference-Sharratt-1994]

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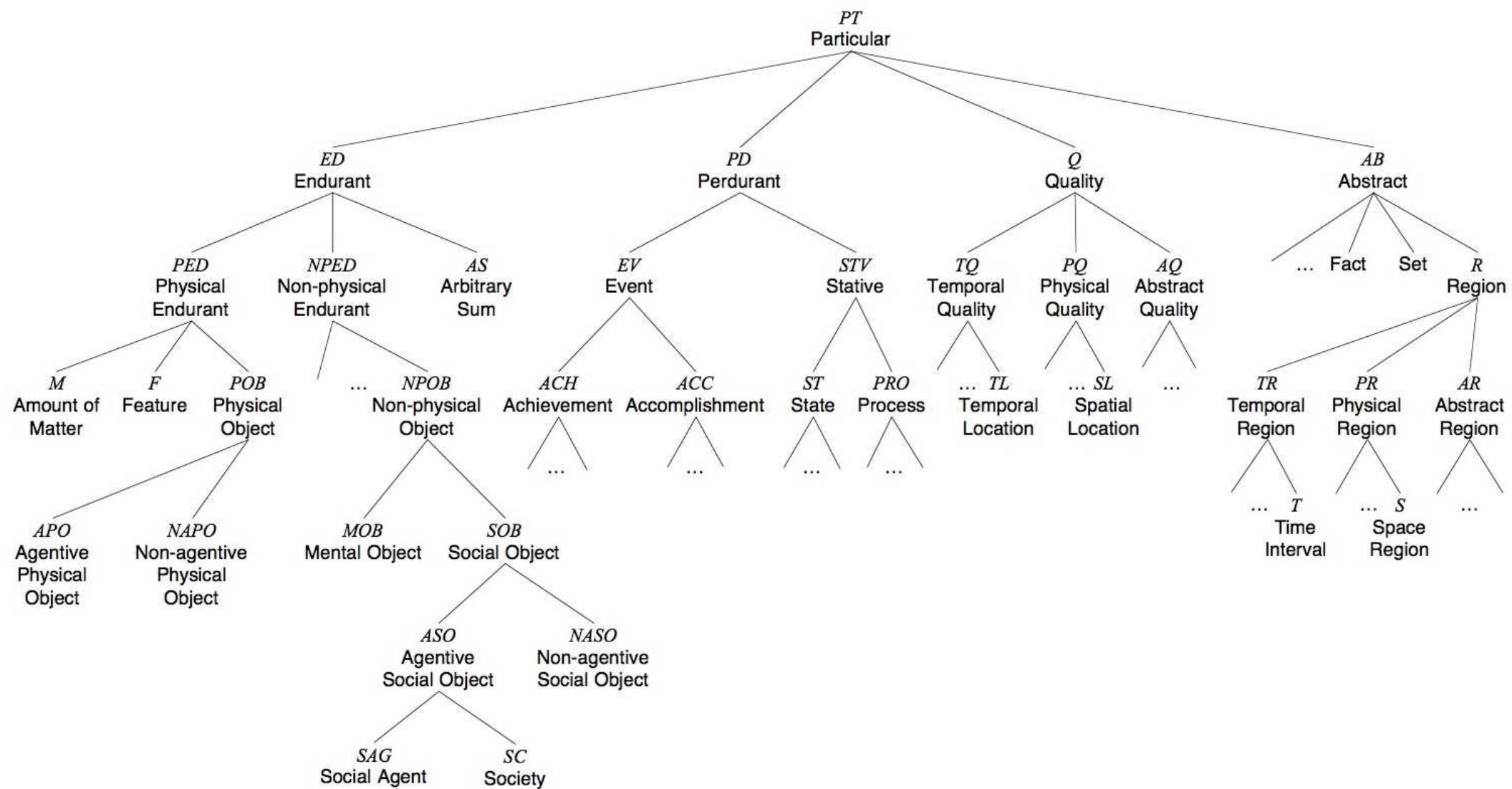
“An ontology is
a formal explicit specification
of a shared conceptualization
of a domain of interest”

- « Formality – ... a knowledge representation language that is based on the grounds of **formal semantics**. »
- « Consensus – ... an agreement on a domain conceptualization among people in a community. »
- « Conceptuality – ... in terms of conceptual symbols that can be intuitively grasped by humans, as they correspond to the elements in their **mental models**. »
- « Domain Specificity – ... limited to knowledge about a particular **domain of interest**. »

[Domingue et al. 2011, p. 510-511]

The issue of a suitable conceptualization :

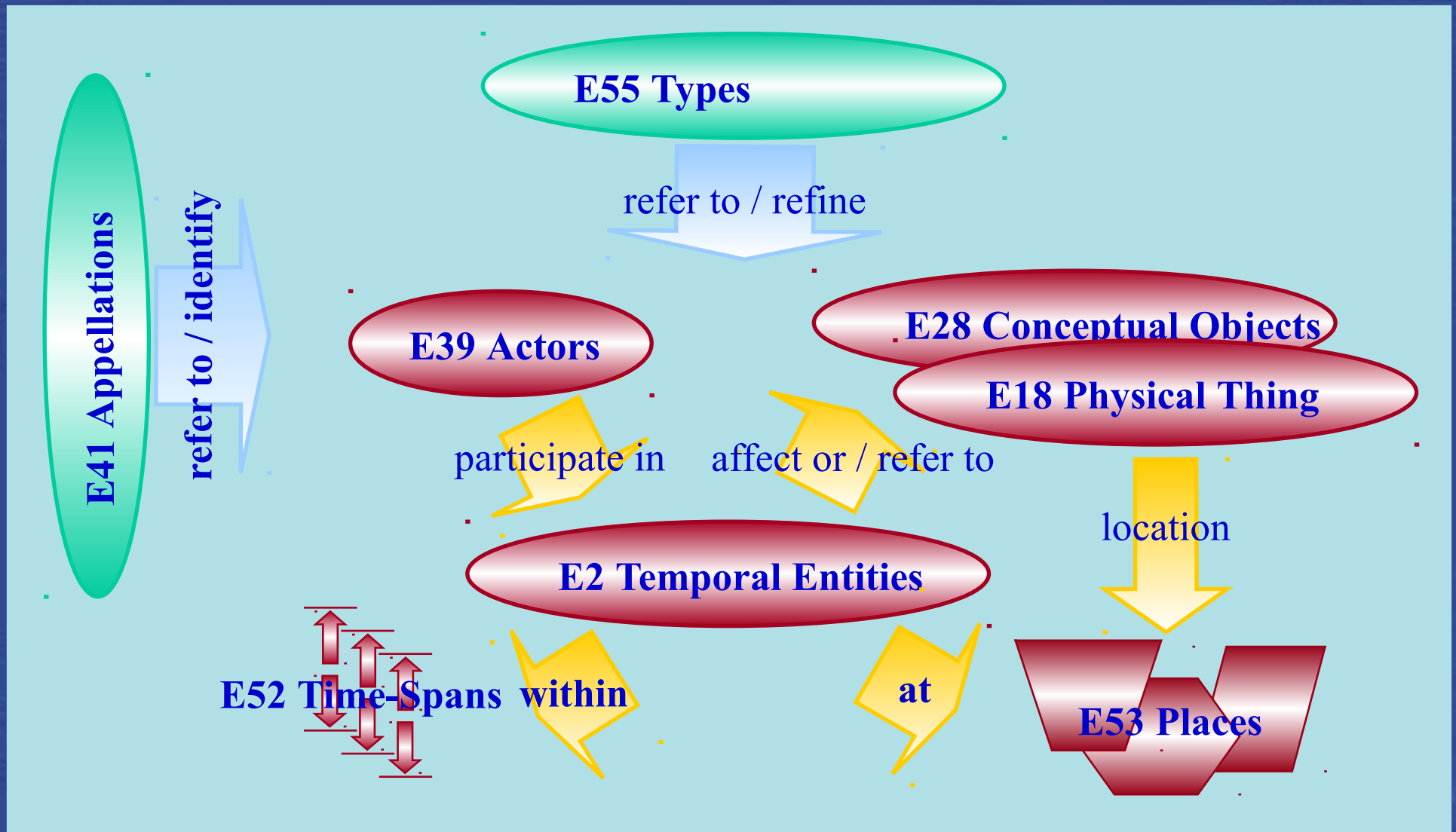
Foundational ontologies
were developed to support the
verification and improvement
of the **conceptualization** of a **domain of discourse**.



Descriptive Ontology for Linguistic and Cognitive Engineering (DOLCE) – a foundational ontology designed in 2002 in the context of the WonderWeb EU project, developed by Nicola Guarino and his associates at the Laboratory for Applied Ontology (LOA) – WonderWeb Deliverable D18, p.14

The CIDOC CRM (ISO21127:2006)

A semantic framework that provides interoperability between different sources of cultural heritage information



Stephen Stead (2008)

Persistent items

« In 1592, he [Galileo Galilei] moved to the University of Padua where he taught geometry, mechanics, and astronomy until 1610»
[https://en.wikipedia.org/wiki/Galileo_Galilei#Sharratt-1994]

Person

Group

Conceptual object

Conceptual object

Geographical place

« Letter by cardinal Bellarmine to Paolo Antonio Foscarini, 12 April 1615:

Person

Person

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Person

Person

Conceptual object

Conceptual object

Person

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Temporal entities

« In 1592, he [Galileo Galilei] moved to the University of Padua where he taught geometry, mechanics, and astronomy until 1610»

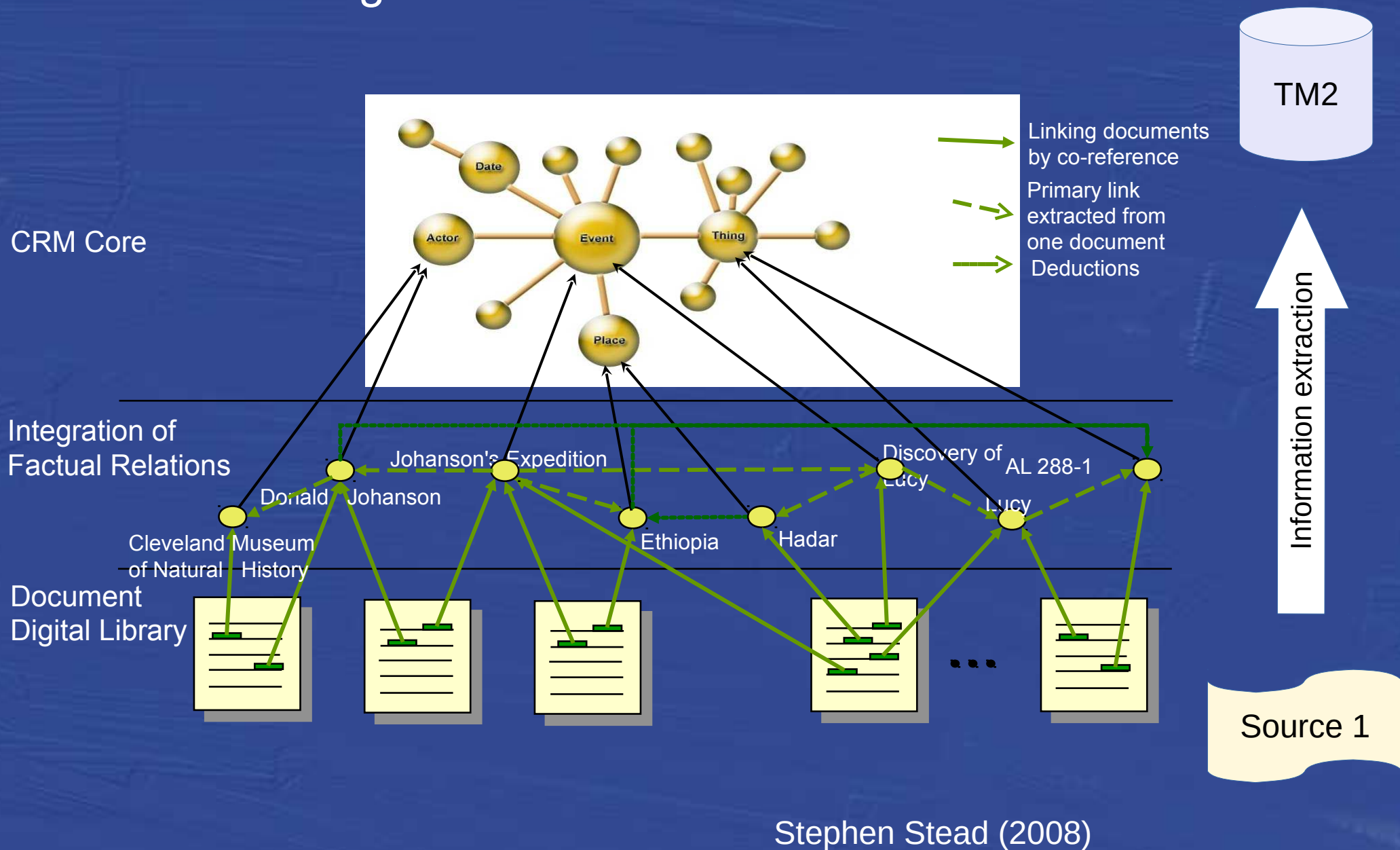
[https://en.wikipedia.org/wiki/Galileo_Galilei#Reference-Sharratt-1994]

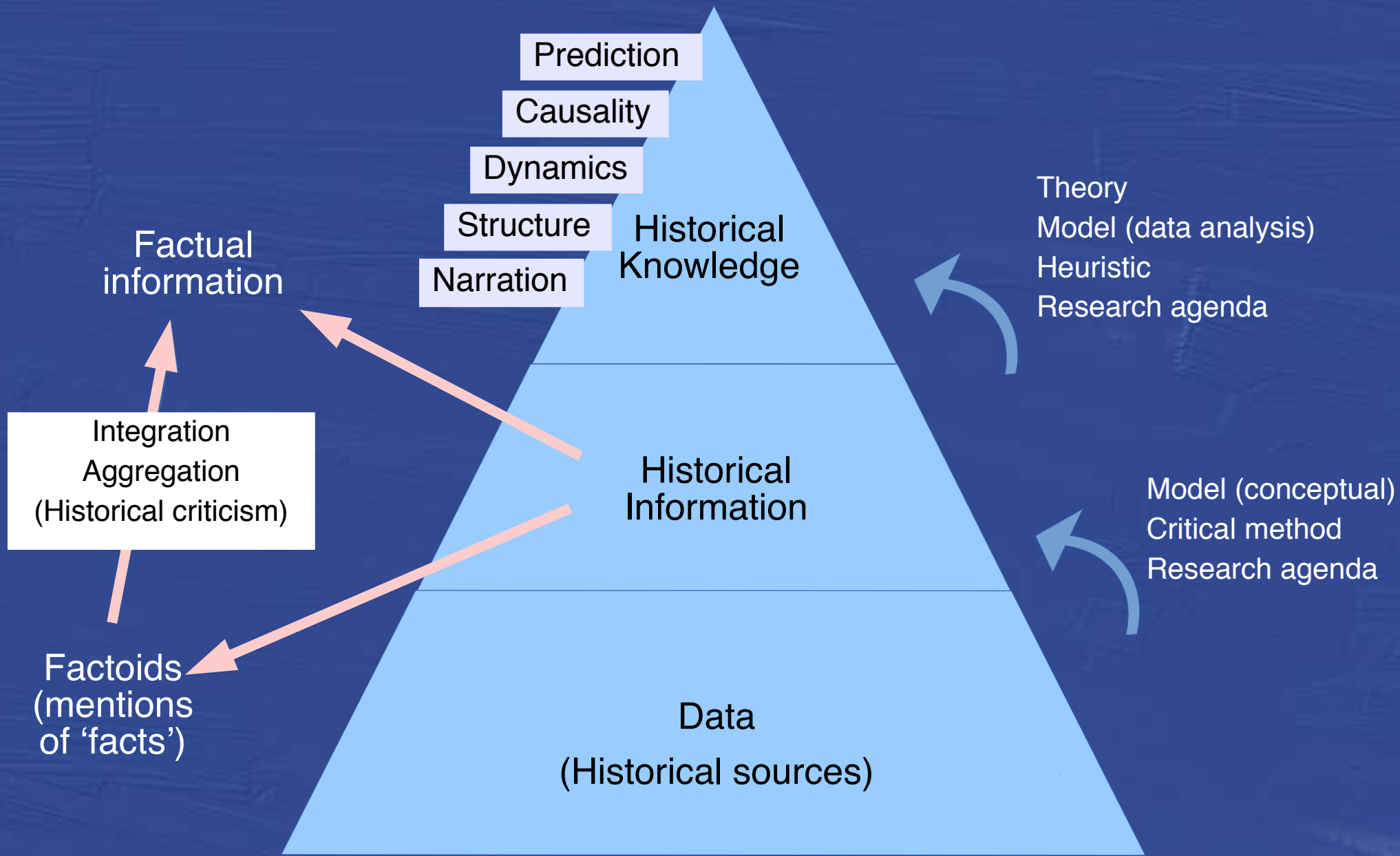
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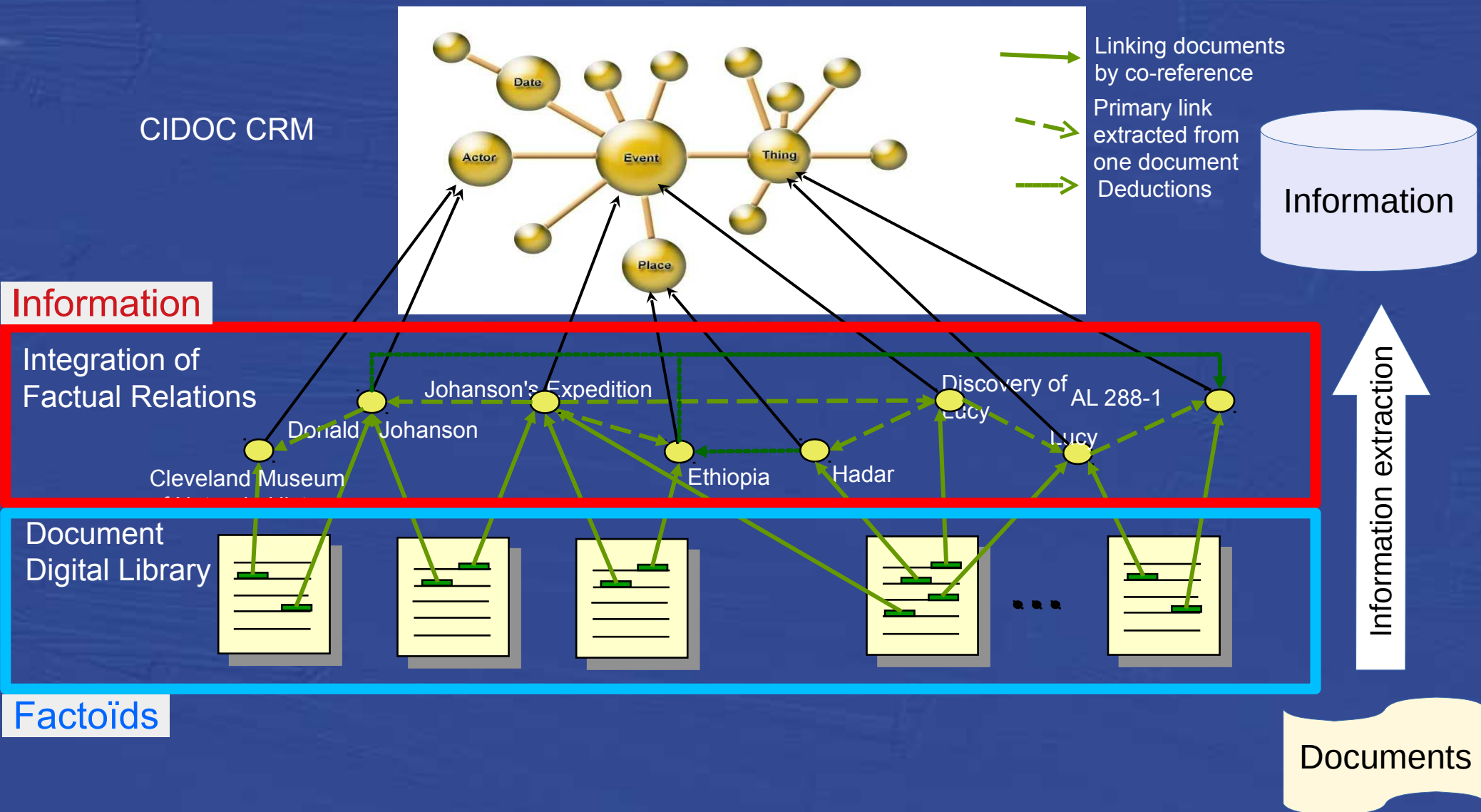
[The Galileo Affair. A Documentary History, ed. and translated by Maurice A. Finocchiaro, Berkeley e.a. University of California Press 1989, p. 67]

Integration of information extracted from documents using the CIDOC CRM and its extensions

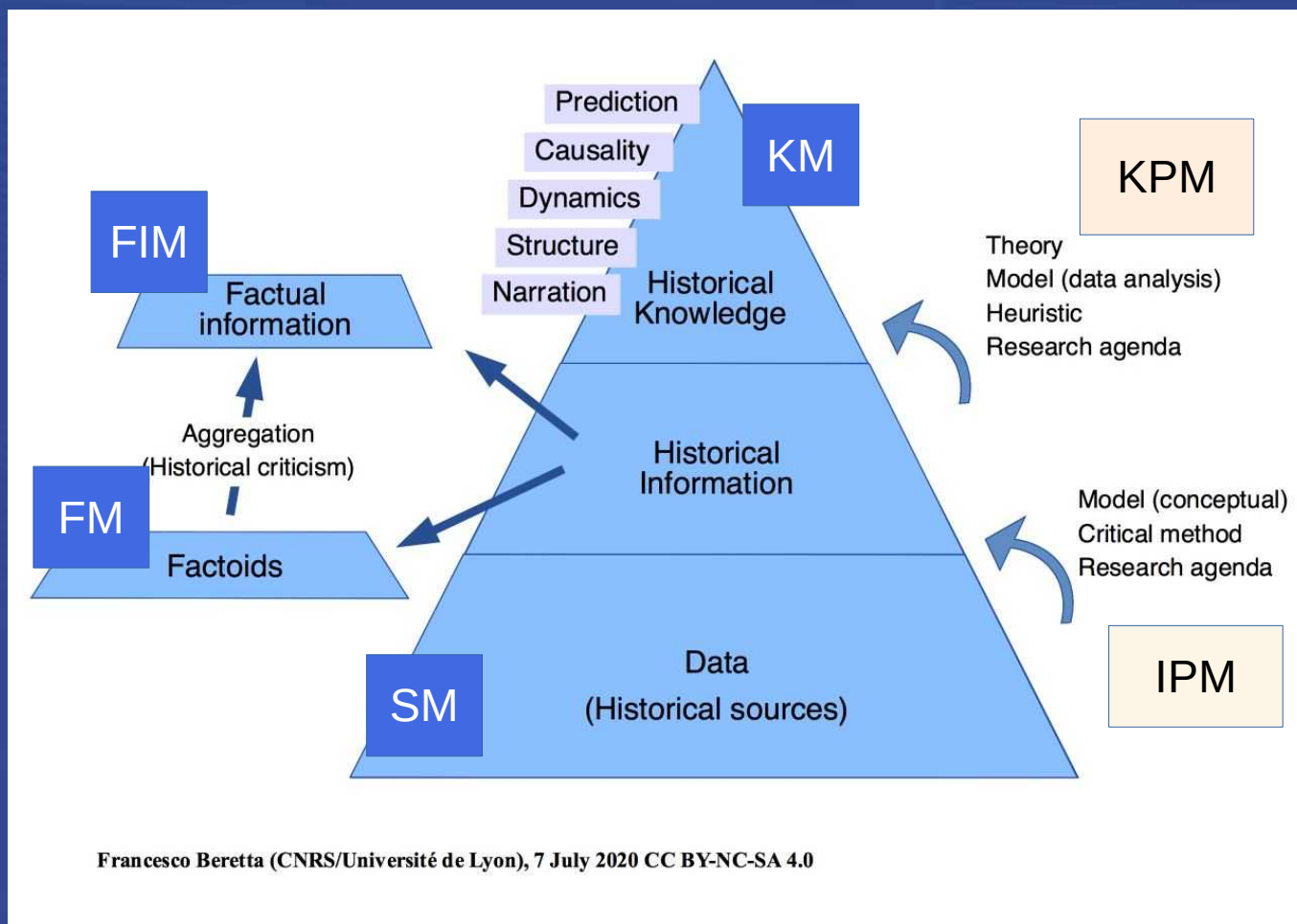
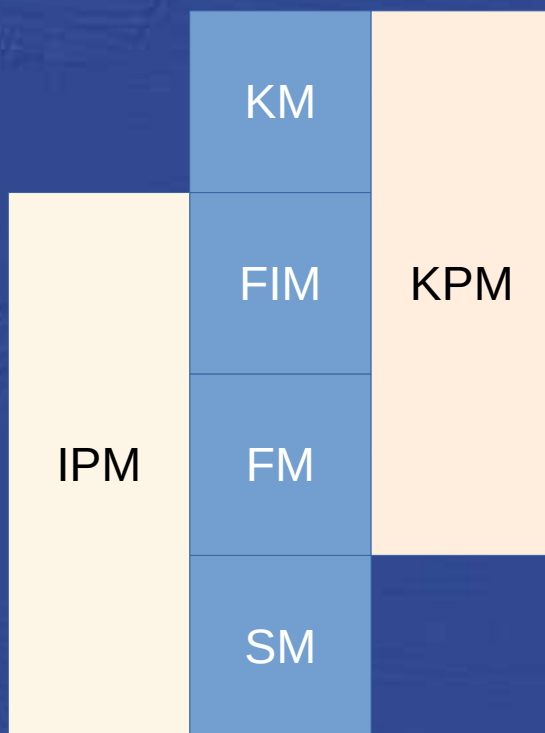




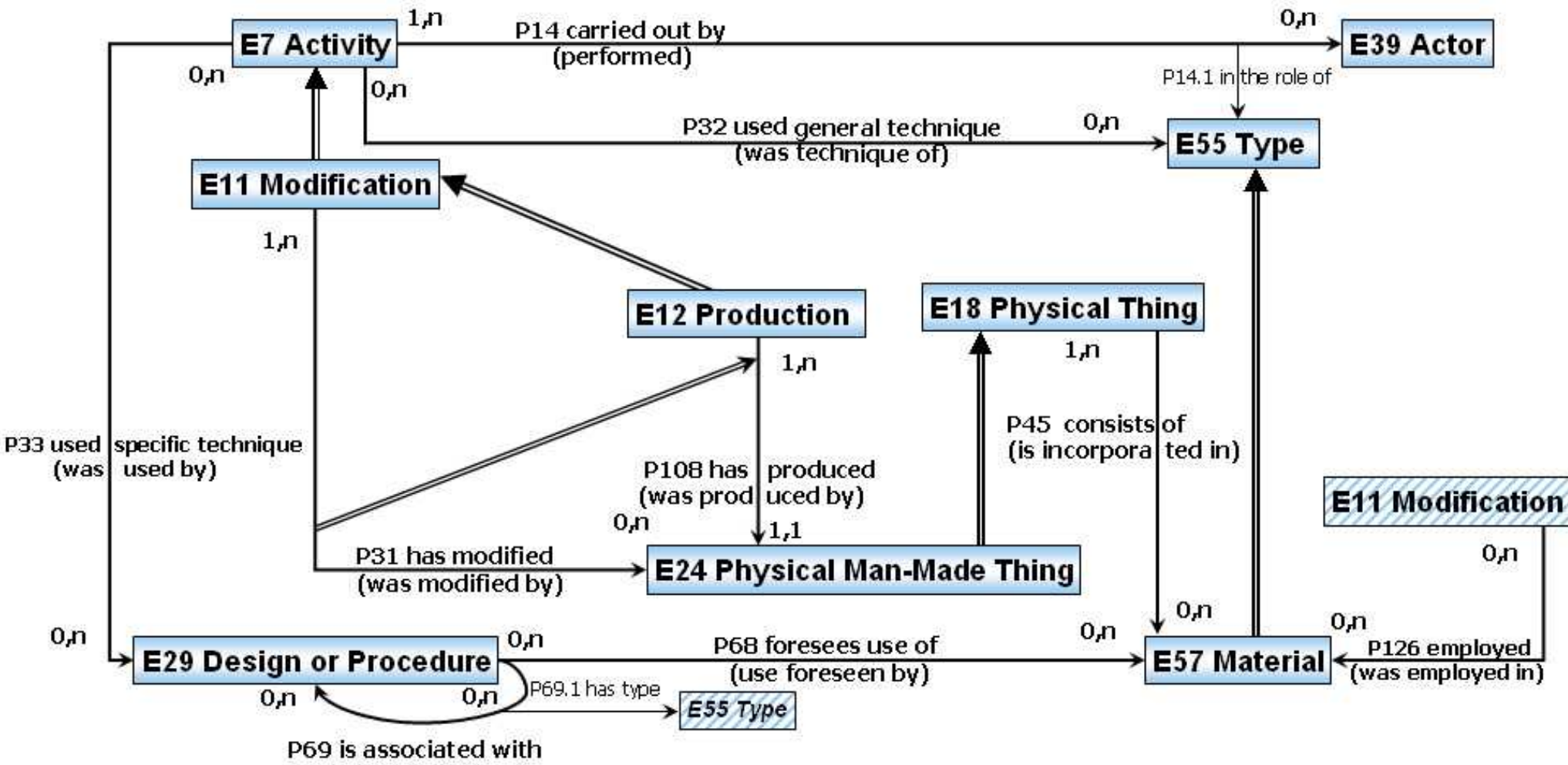
Integration of information extracted from documents using the CIDOC CRM



Different models for different aspects of historical knowledge production

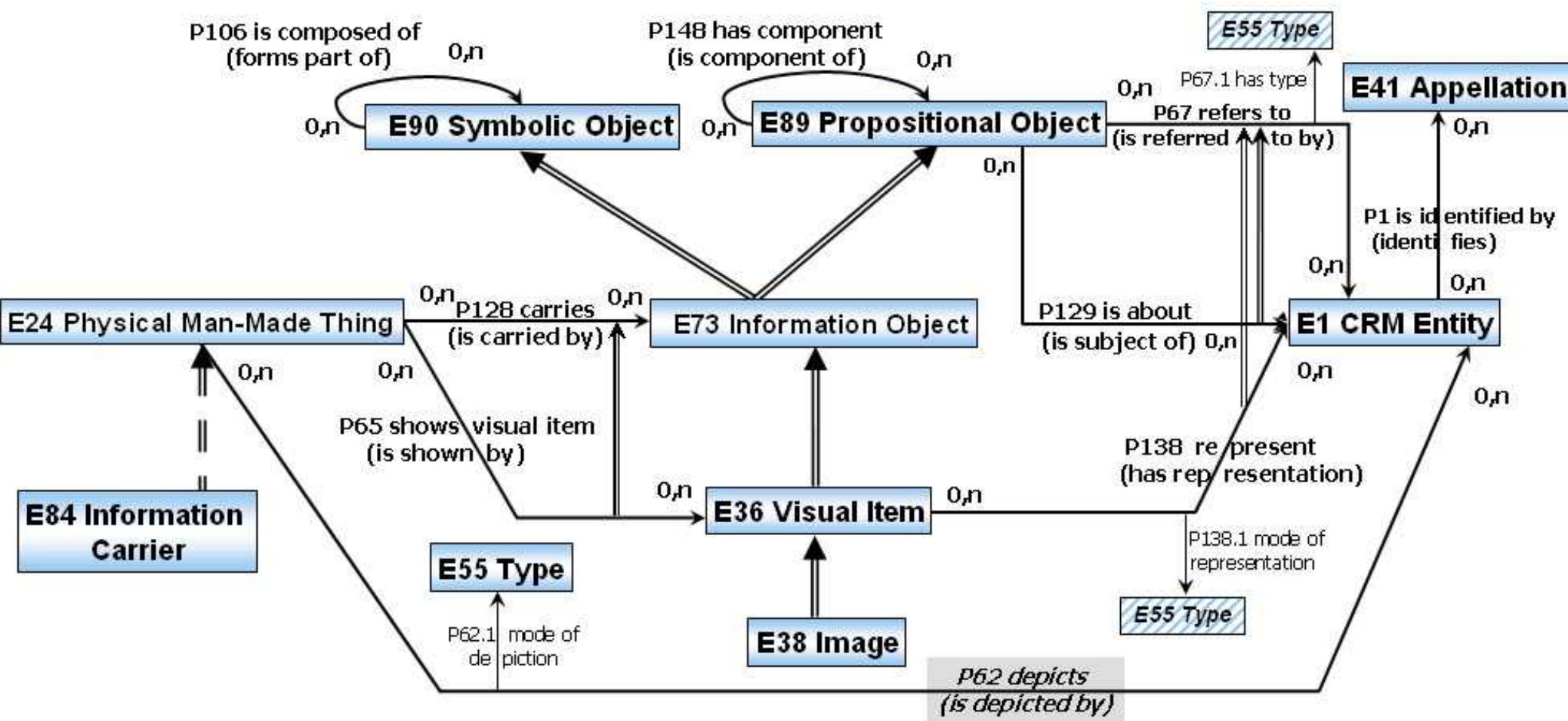


MATERIAL AND TECHNIQUE INFORMATION



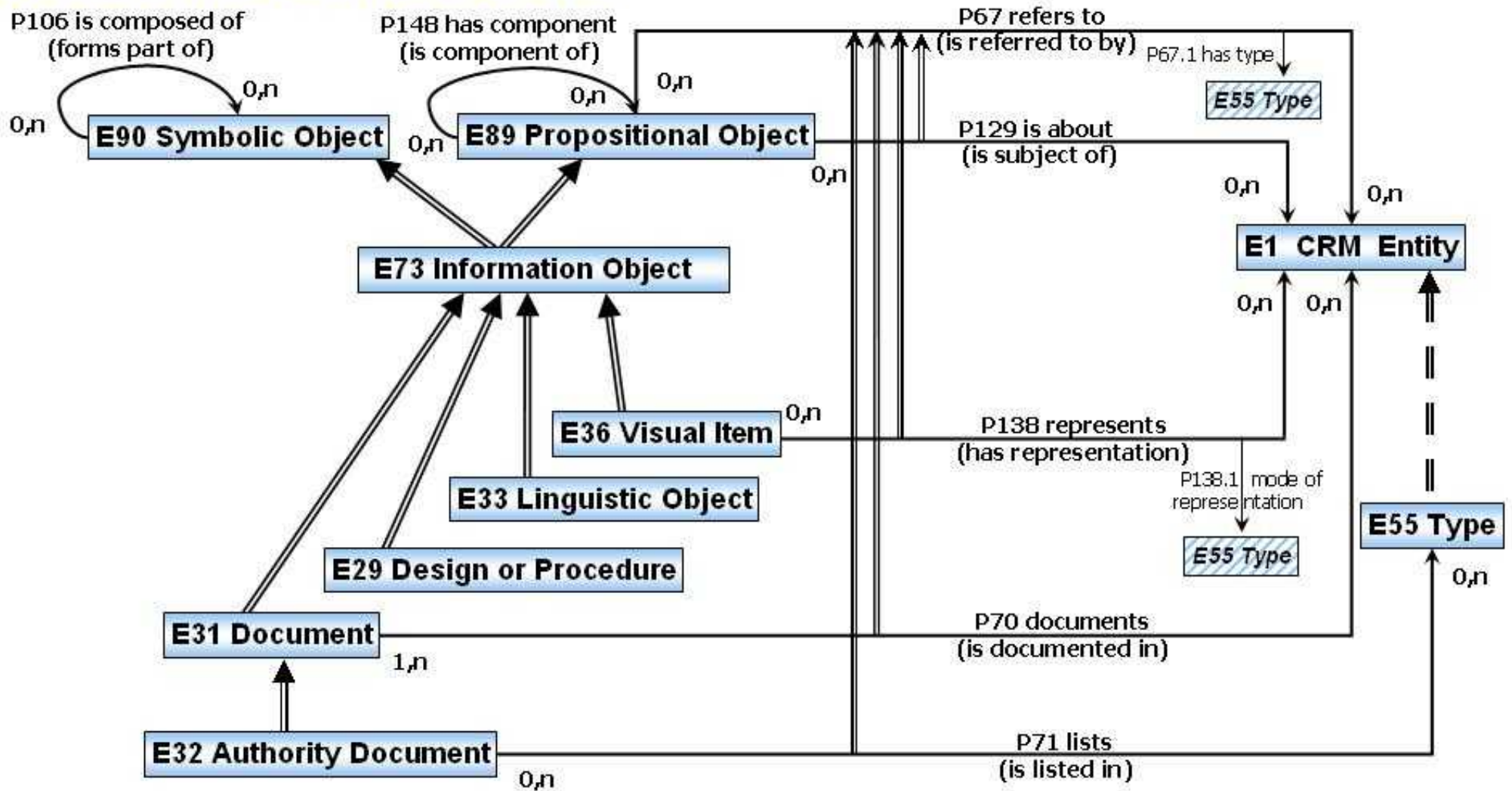
Functional overview: Material and Technique Information .

IMAGE INFORMATION, OBJECTS AND CARRIERS



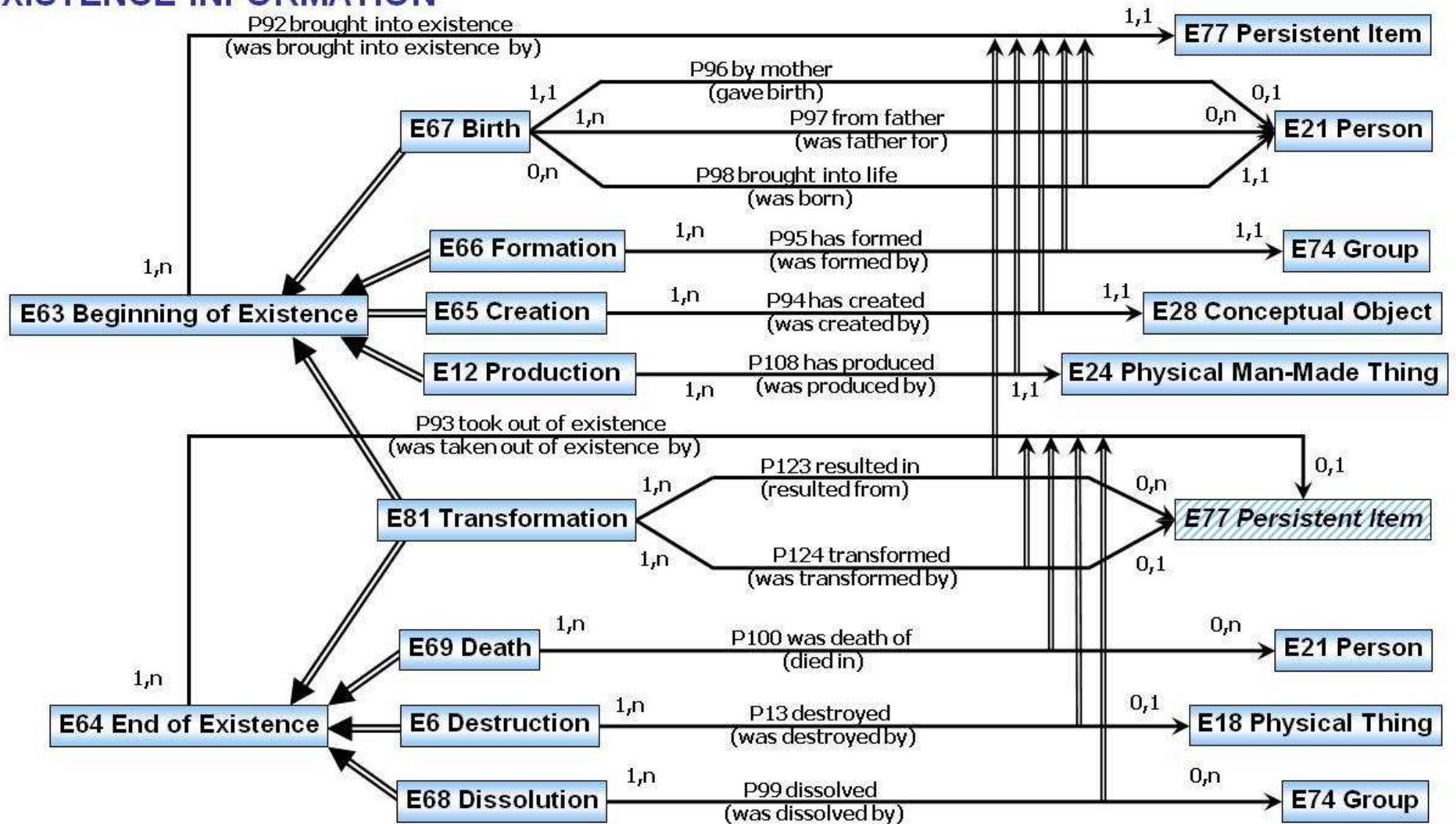
Functional overview: Image Information, Objects and Carriers .

DOCUMENTATION and REFERENCES



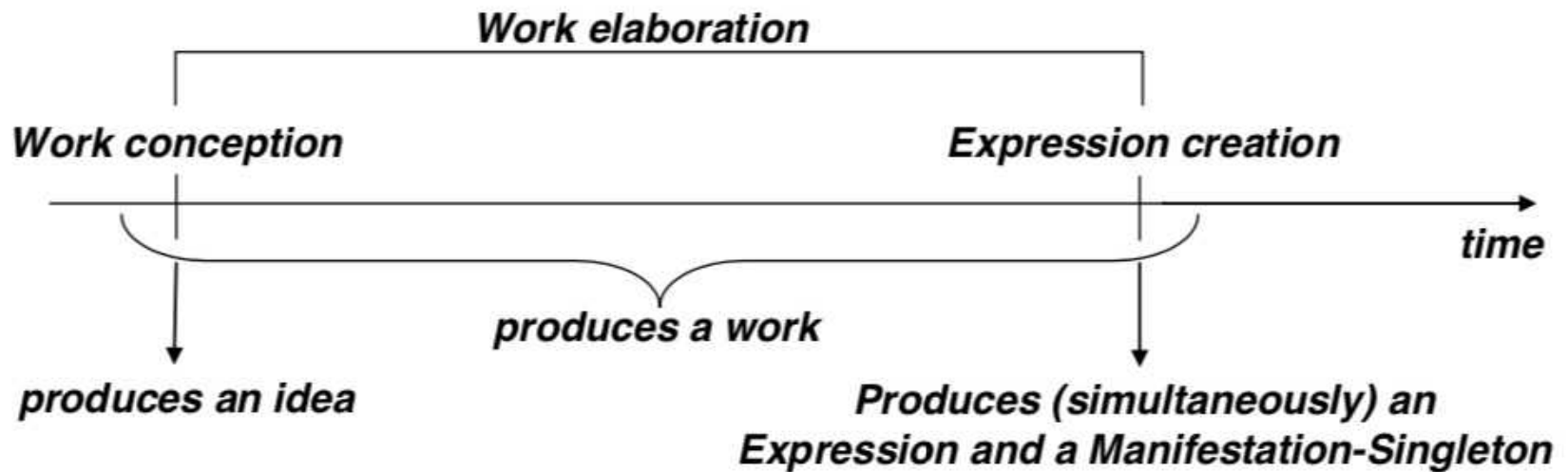
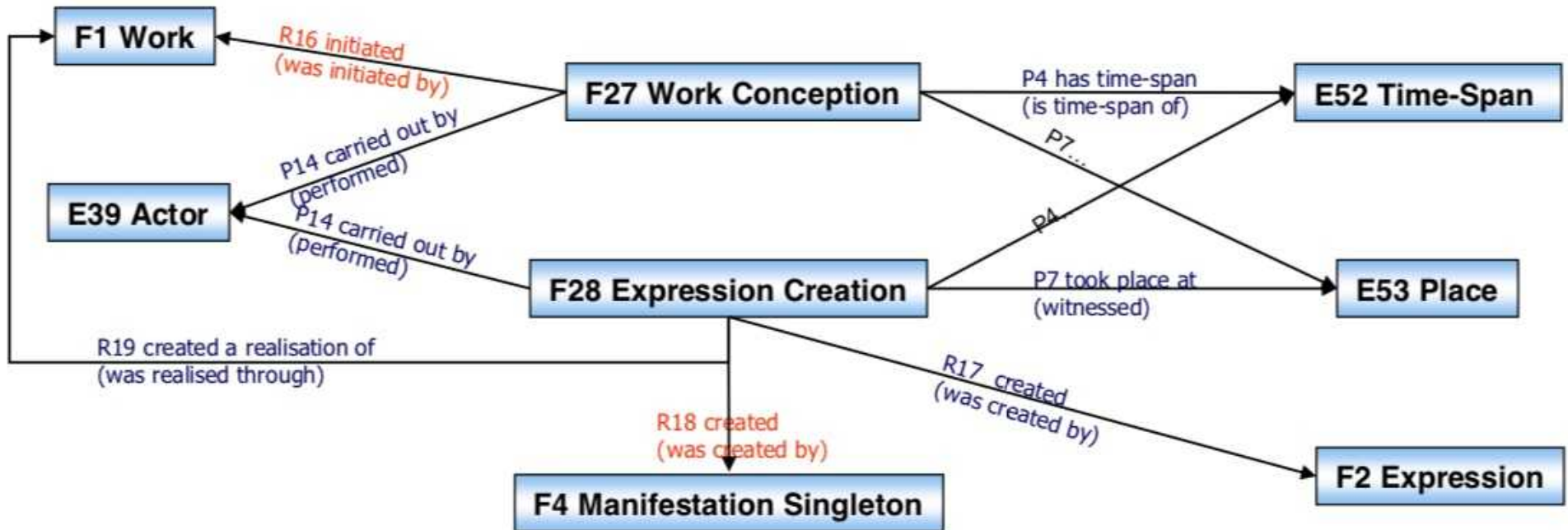
Functional overview: Documentation and References .

EXISTENCE INFORMATION



Functional overview: Existence Information .

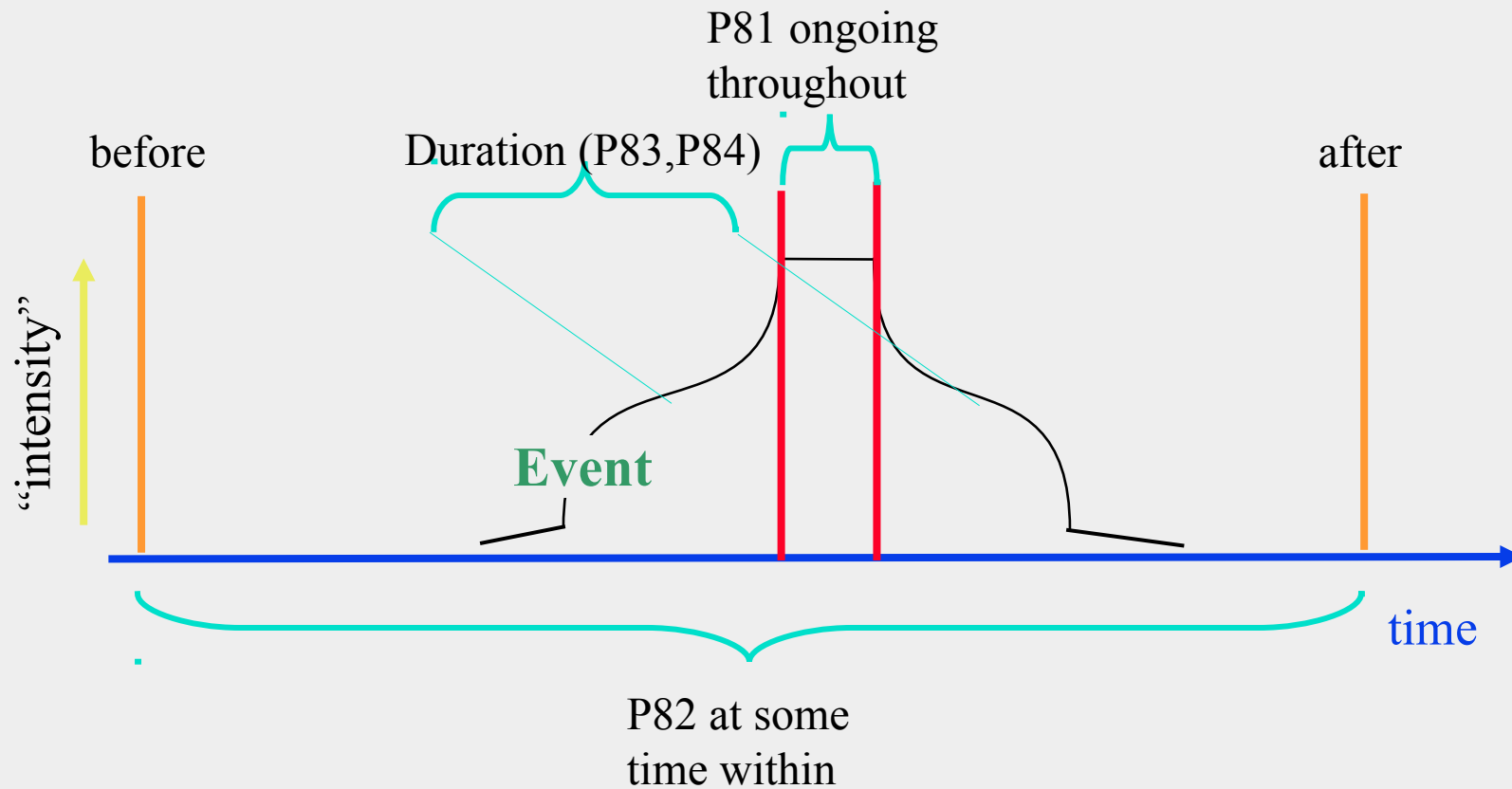
Work and Time



FRBRoo 2.4, Figure 1, page 14 – Releases

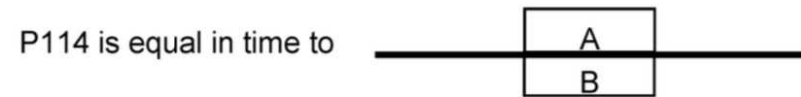
The CIDOC CRM

Time Uncertainty, Certainty and Duration

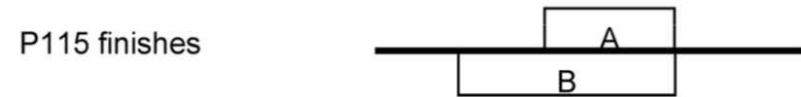


Stephen Stead (2008)

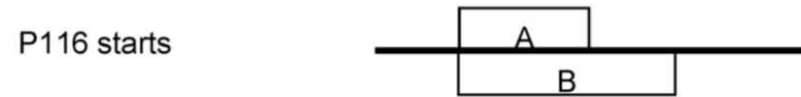
The CIDOC CRM P114-120 'Allen' properties (James F. Allen)



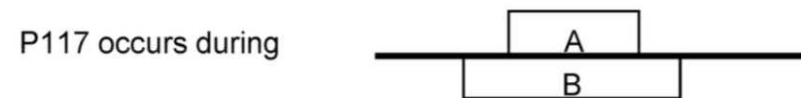
$$A_s = B_s \ \& \ A_e = B_e \Leftrightarrow (A_{ss} = B_{ss} \ \& \ A_{se} = B_{se}) \ \& \ (A_{es} = B_{es} \ \& \ A_{ee} = B_{ee})$$



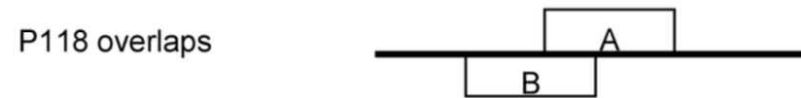
$$A_s > B_s \ \& \ A_e = B_e \Leftrightarrow (B_{ss} < A_{ss} \ \& \ B_{se} < A_{se}) \ \& \ (B_{es} = A_{es} \ \& \ B_{ee} = A_{ee})$$



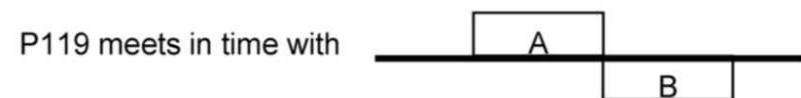
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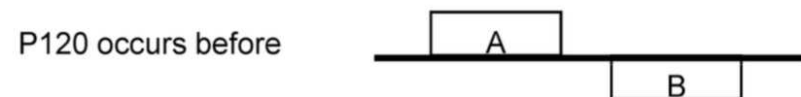
$$B_s < A_s \ \& \ A_e < B_e \Leftrightarrow (B_{ss} < A_{ss} \ \& \ B_{se} < A_{se}) \ \& \ (A_{es} < B_{es} \ \& \ A_{ee} < B_{ee})$$



$$B_s < A_s \ \& \ A_s < B_e \ \& \ B_e < A_e \Leftrightarrow (B_{ss} < A_{ss} \ \& \ B_{se} < A_{se}) \ \& \ (A_{ss} < B_{es} \ \& \ A_{se} < B_{ee}) \ \& \ (B_{es} < A_{es} \ \& \ B_{ee} < A_{ee})$$



$$A_e = B_s \Leftrightarrow A_{es} = B_{ss} \ \& \ A_{ee} = B_{se}$$



$$A_e < B_s \Leftrightarrow A_{es} < B_{ss} \ \& \ A_{ee} < B_{se}$$

J. Holmen et Ch.-E. Ore (2010)

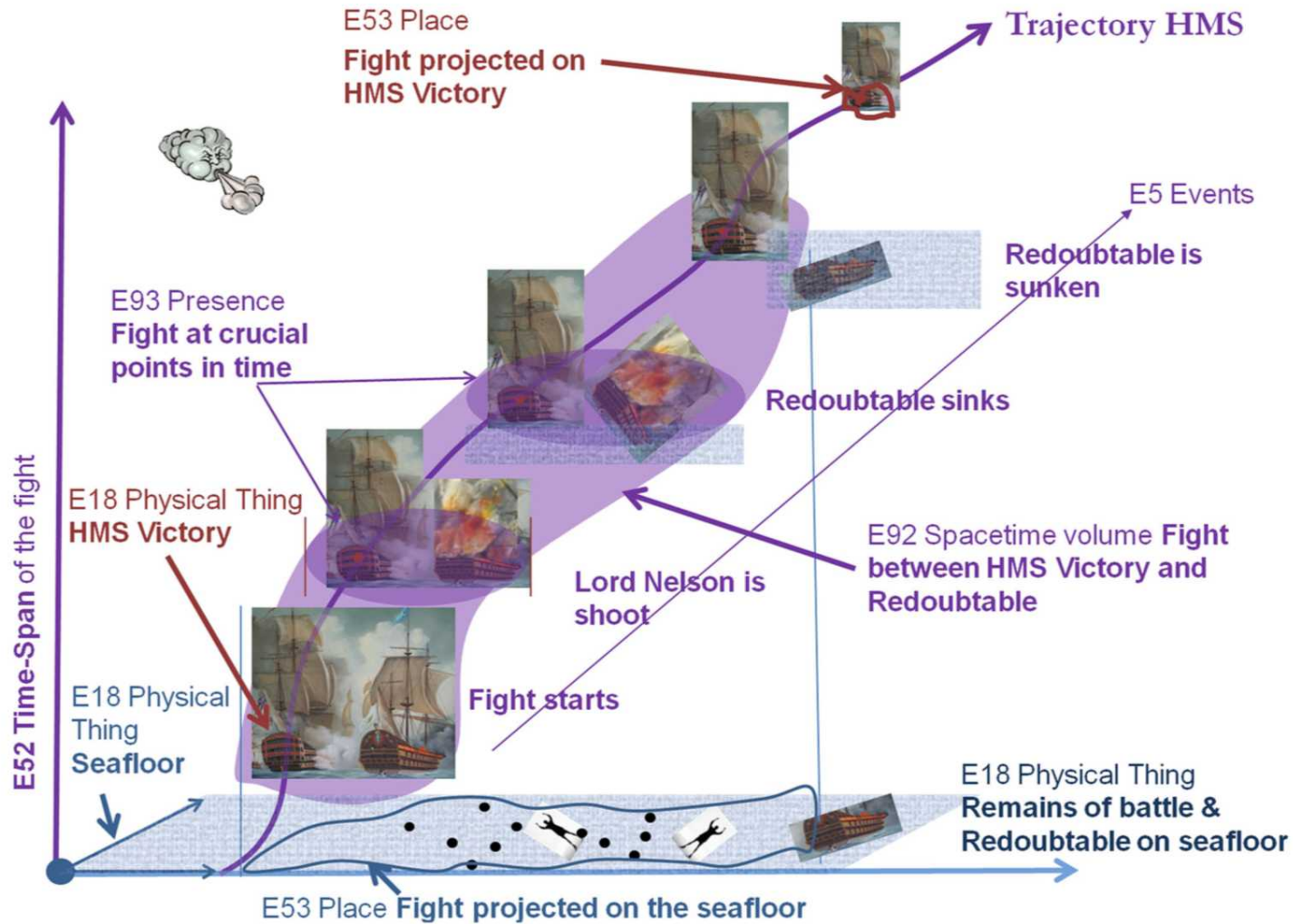
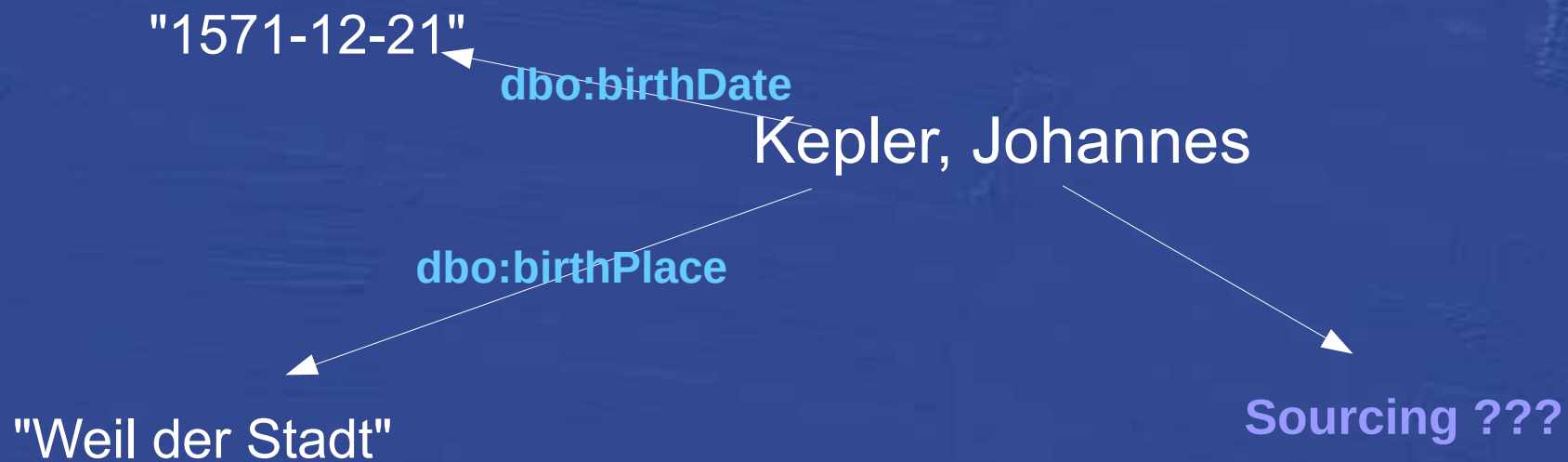


Fig. 2 The fight of the HMS Victory and the Redoubtable in the Battle of Trafalgar illustrating Spacetime volume (E92) and Presence (E93) and their projection to different Places (E53)

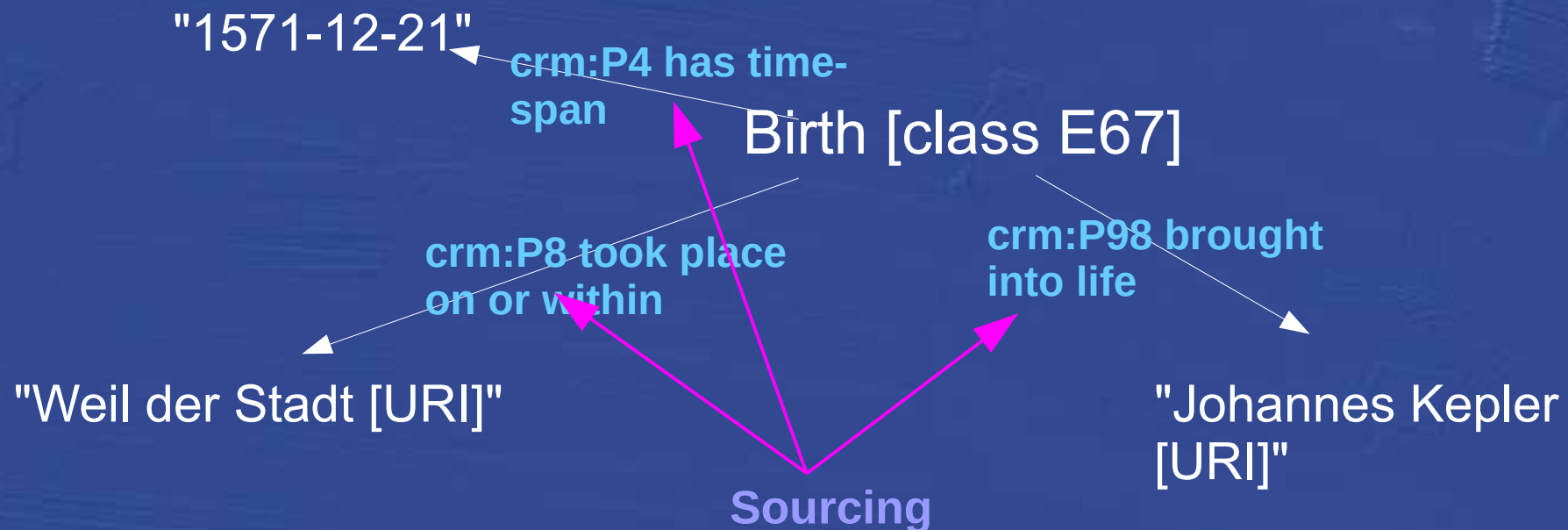
DOI 10.1007/s00799-016-0192-4

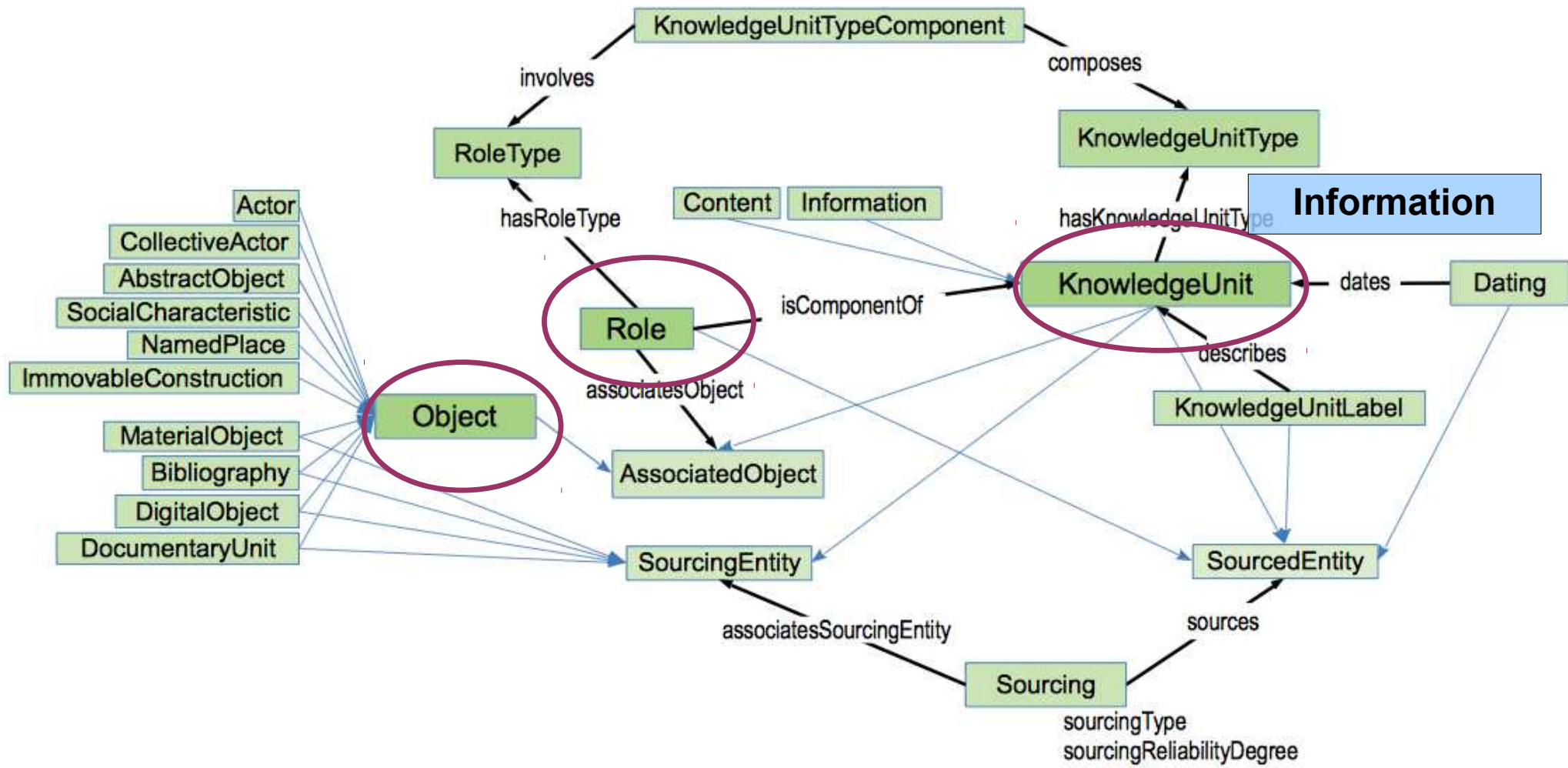
CRMgeo: A spatiotemporal extension of CIDOC-CRM Gerald Hiebel1 · Martin Doerr2 · Øyvind Eide3

Adopt a resource-centered model...



... or prefer a more robust event-centered model !





The symogih.org ontology

The definition of each instance of the data model is publicly available

SYMOGIIH
Références

[Accueil](#) [Documentation](#) [Membres](#)

<http://symogih.org>

Références

- Arborescence des classes de types d'unités de connaissances
- Types d'informations
- Types de contenus

Objets

- Acteurs
- Acteurs collectifs
- Objets abstraits
- Caractères sociaux

Classes de types d'

Chercher une classe

- Biographie
 - Enseignement -
 - Exercice d'une f
 - Fin de la vie
 - Liens acteurs - i
 - Localisation d'u
 - Rites sociaux
 - Vie militaire
 - Vie professionne

Enseignement

TyIn97

Exercer la fonction d'enseigner, avec indication de l'institution auprès de laquelle s'exerce l'enseignement et des matières enseignées.

Il s'agit d'un cas particulier du TyIn 'Exercice d'une fonction' : cf. Classe TyIn 'Exercice d'une fonction'.
Attention : ne pas renseigner le lieu si on peut localiser l'institution elle-même.

Liste des types de rôles associés

Libellé du type de rôle ^	Clé du TyRo	Description
concerner	TyRo21	Institution auprès de laquelle s'exerce l'enseignement. Ce rôle a été gardé pour être l'équivalent du TyIn7 : Exercice d'une fonction.
enseigné (être)	TyRo131	La matière enseignée (un objet abstrait). On peut en associer plusieurs si on enseigne en même temps plusieurs matières. En revanche, il faut créer plusieurs informations si les enseignements des différentes matières se succèdent ou si le contexte institutionnel est différent
exercé (être)	TyRo47	Qualification de l'enseignement : professeur, chargé de cours, etc. Ce rôle a été gardé pour être l'équivalent du TyIn7 : Exercice d'une fonction.
exercer	TyRo12	Ce rôle a été gardé pour être l'équivalent du TyIn7 : Exercice d'une fonction.
localiser	TyRo8	Ne pas renseigner si l'institution auprès de laquelle s'effectue l'enseignement est déjà localisée.
occasionner la fin	TyRo176	Associe l'information ou le AbOb qui explique la fin de l'enseignement
origine (être l')	TyRo16	Associe l'information (nomination, élection, ...) ou l'objet abstrait qui indiquent la cause de l'enseignement
typer	TyRo98	A utiliser dans le contexte de ce TyIn pour spécifier la nature de l'enseignement grâce à un AbOb (cours magistral, séminaire, etc.).

MCD disponible(s)

[Télécharger ce MCD](#)

Accueil

Actualités

Documentation

Membres

Références

- Arborescence des classes de types d'unités de connaissances
- Types d'informations
- Types de contenus

Objets

- Acteurs
- Acteurs collectifs
- Lieux
- Objets abstraits
- Caractères sociaux
- Formes concrètes

Galilei, Galileo - Enseigne : Mathématiques, auprès de : Université de Padoue

Info94542

Type d'information: [Enseignement](#) - TyIn97

Date: 1592

Composantes de l'information

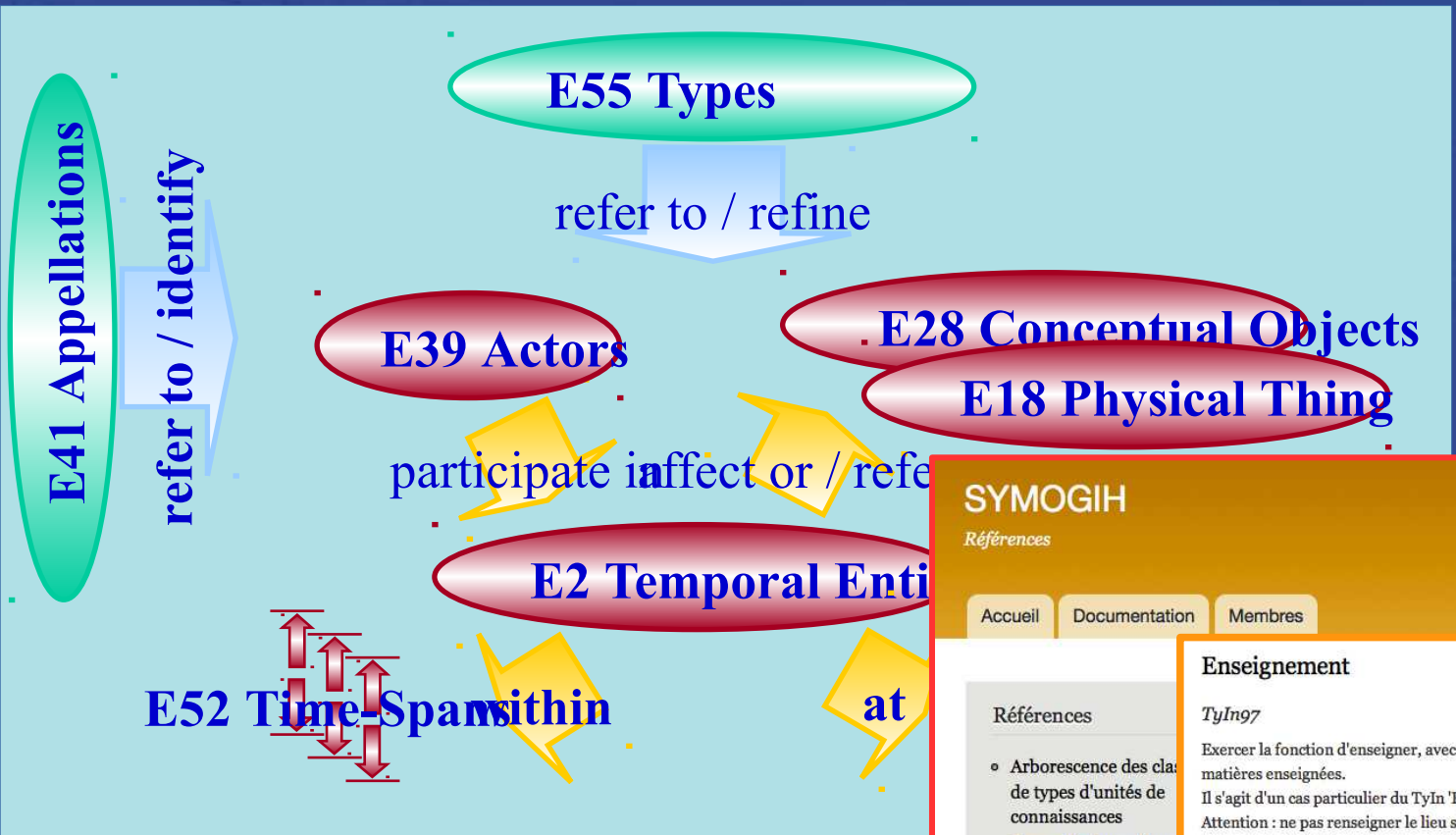
Rôles

Textes

Sources

Libellé de l'objet	Type de rôle	Clé du rôle
Galilei, Galileo	exercer	InRo261100
Université de Padoue	concerner	InRo261101
Mathématiques	enseigné (être)	InRo261102

Galileo Galilei taught mathematics at the University of Padua from 1592 and 1610



<http://symogih.org>

SYMOGIH
Références

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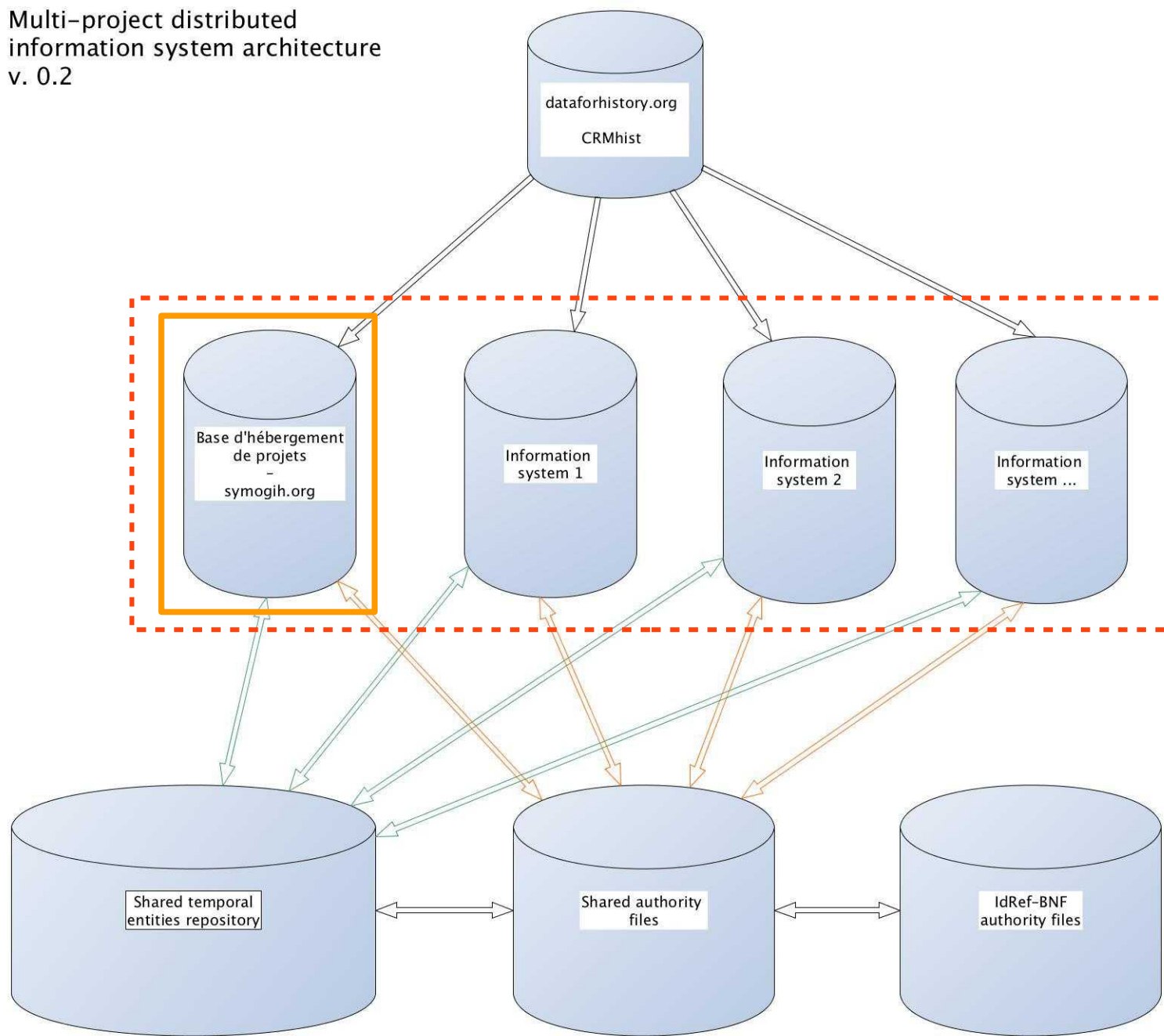
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MCD disponible(s)
Télécharger ce MCD

symogih.org and the CRM :
extending the standard
for geo-historical projects'
data production

Multi-project distributed information system architecture v. 0.2



Kepler, Johannes

<http://symogih.org/resource/Actr195>

Actr195

Année de naissance: 1571 - Année de mort: 1630

Biographie – documentation

Biographie

Informations

Contenus

Carte

Documentation

Liens

Date	Ressource
2005	Depondt, Philippe / Véricourt, Guillemette de, Kepler. L'ort Éditions du Rouergue, 2005)
2003	Bucclantini, Massimo, Galileo e Keplero. Filosofia, cosmolo Einaudi, 2003)
1979	Simon, Gérard, Kepler: astronome, astrologue (Paris, Galli

Affichage de 1 à 3 sur 3

Kepler, Johannes

Actr195

Année de naissance: 1571 - Année de mort: 1630

Biographie – documentation

Biographie

Informations

Contenus

Carte

Documentation

Liens

Idref – URL identifiant un objet : **026947676**

Autorités BnF – identifiant pérenne : **cb11909597m**

DBPedia Live – URL de ressource : **Johannes_Kepler**

owl:sameAs



Kepler, Johannes (1571-1630)

<http://www.idref.fr/autorites/autorites.html>



← Précédent

Suivant →

026947676

Lien permanent

<http://www.idref.fr/026947676>

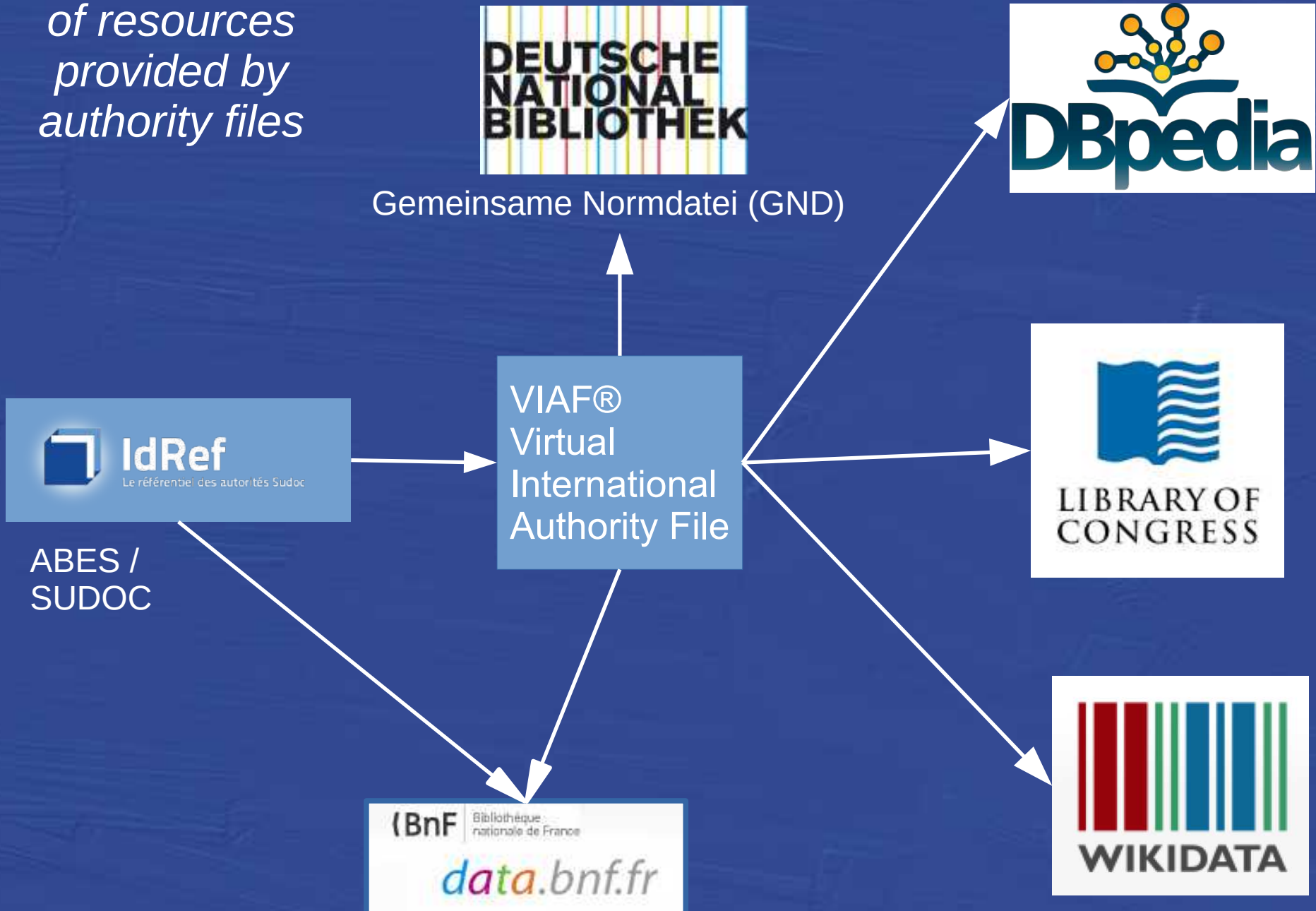
Notice de type
Personne

Forme retenue

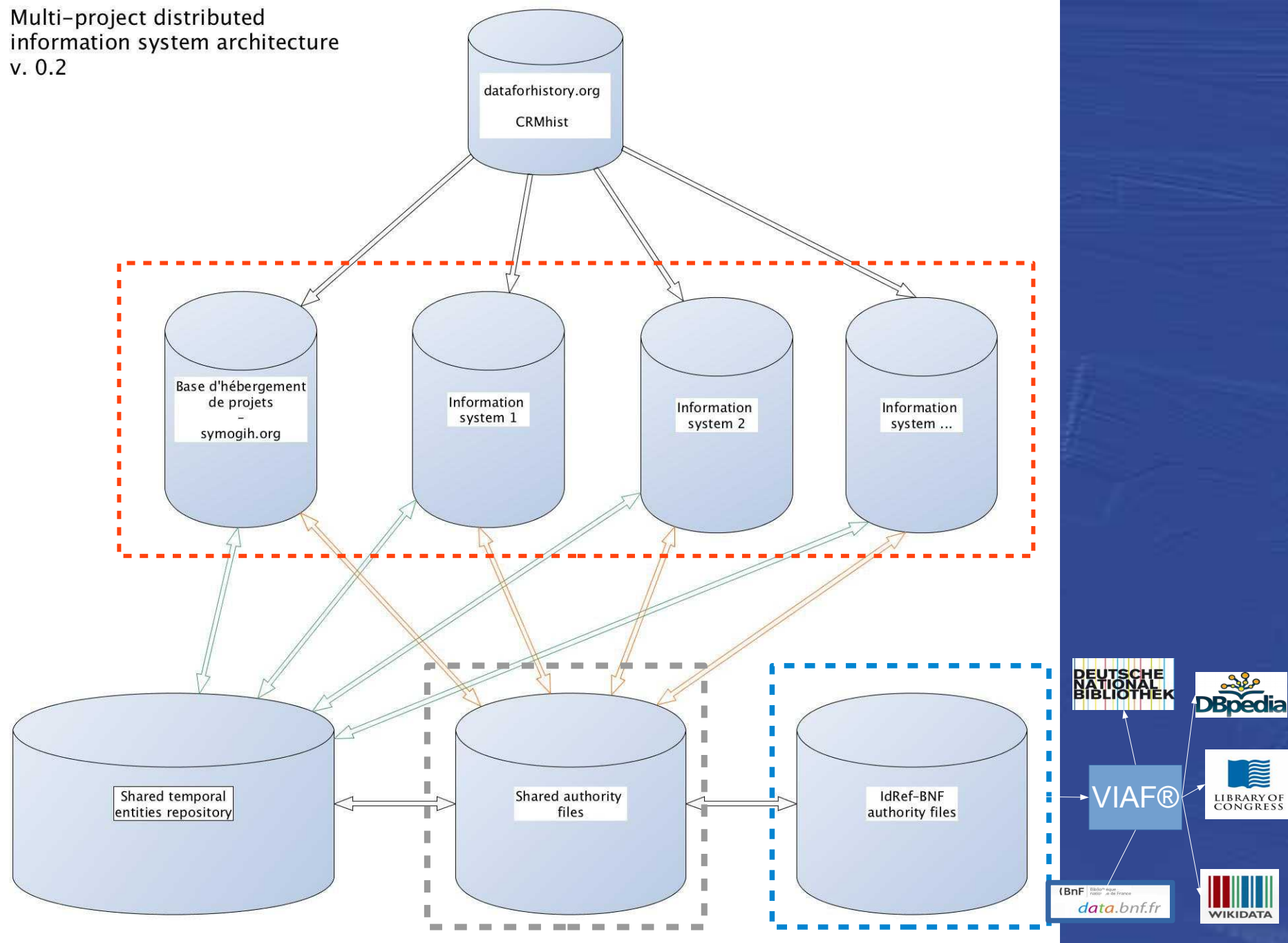
Kepler, Johannes (1571-1630)

Interlinking URIs of resources

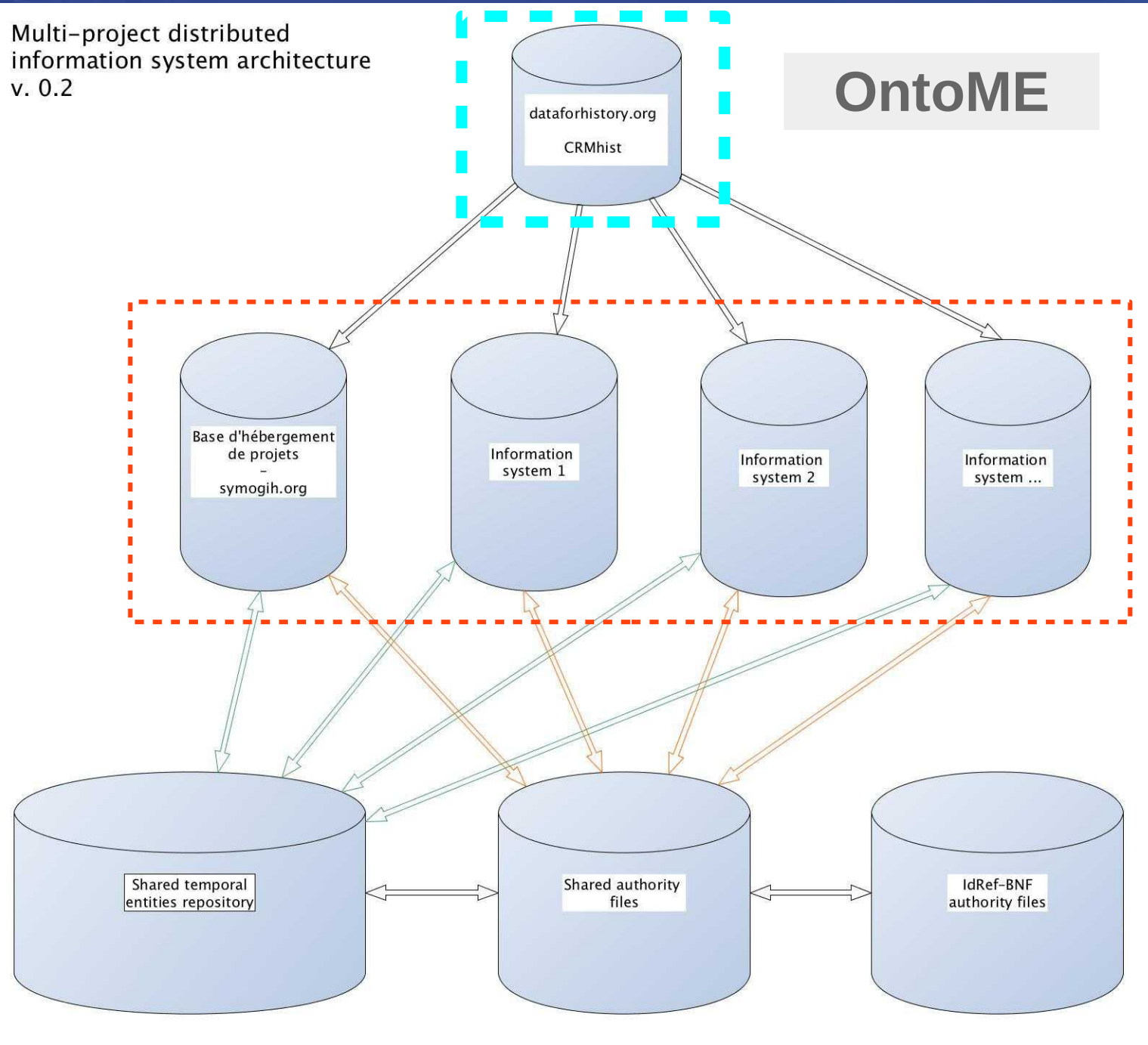
*Interlinking the URIs
of resources
provided by
authority files*



Multi-project distributed information system architecture v. 0.2



dataforhistory.org



OntoME

CIDOC CRM

CIDOC CRM



CRM hist extension

CIDOC CRM



CRM hist extension



Projects' ontology

CIDOC CRM



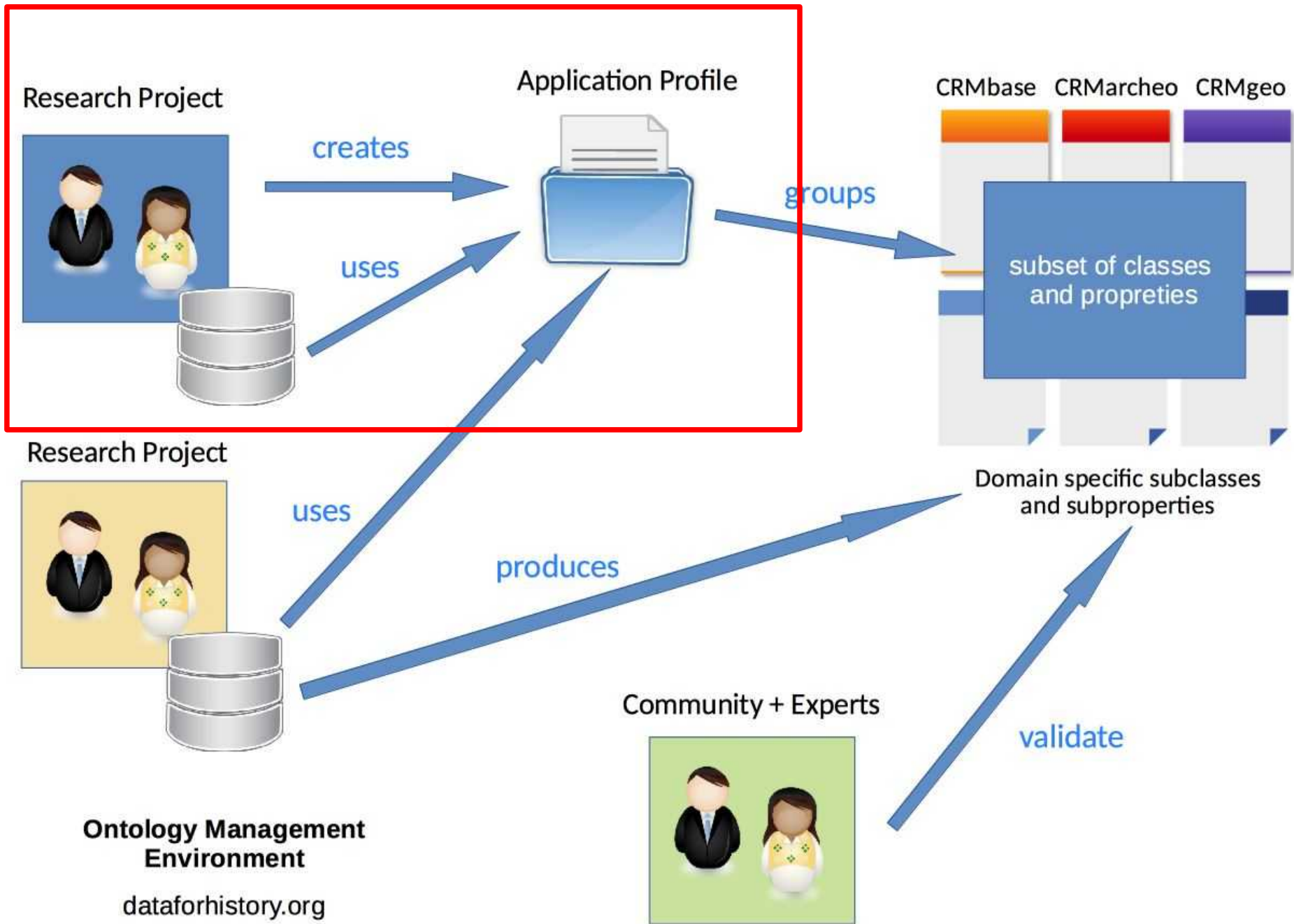
CRM hist extension



Projects' ontology



Information systems



Retrieve your project's application profiles from an API

<https://ontome.dataforhistory.org/api/classes-profile.json?lang=en&available-in-profile=8>

JSON Données brutes En-têtes

Enregistrer Copier

▼ 5:

- pk_class: 61
- identifiant_in_namespace: "E67"
- class_standard_label: "Birth"
- fk_system_type: 9
- type_label: "Temporal Entity"
- root_namespace: "CIDOC CRM"
- profile_association_type: "selected"
- pk_profile: 1
- profile_label: "BHP new data model v. 0.1"
- pk_project: 1
- project_label: "BHP – symogih.org"

▼ 6:

- pk_class: 340
- identifiant_in_namespace: "histC7"
- class_standard_label: "Human being existence"
- fk_system_type: 9
- type_label: "Temporal Entity"
- root_namespace: "Data for history"
- profile_association_type: "selected"
- pk_profile: 1
- profile_label: "BHP new data model v. 0.1"
- pk_project: 1
- project_label: "BHP – symogih.org"

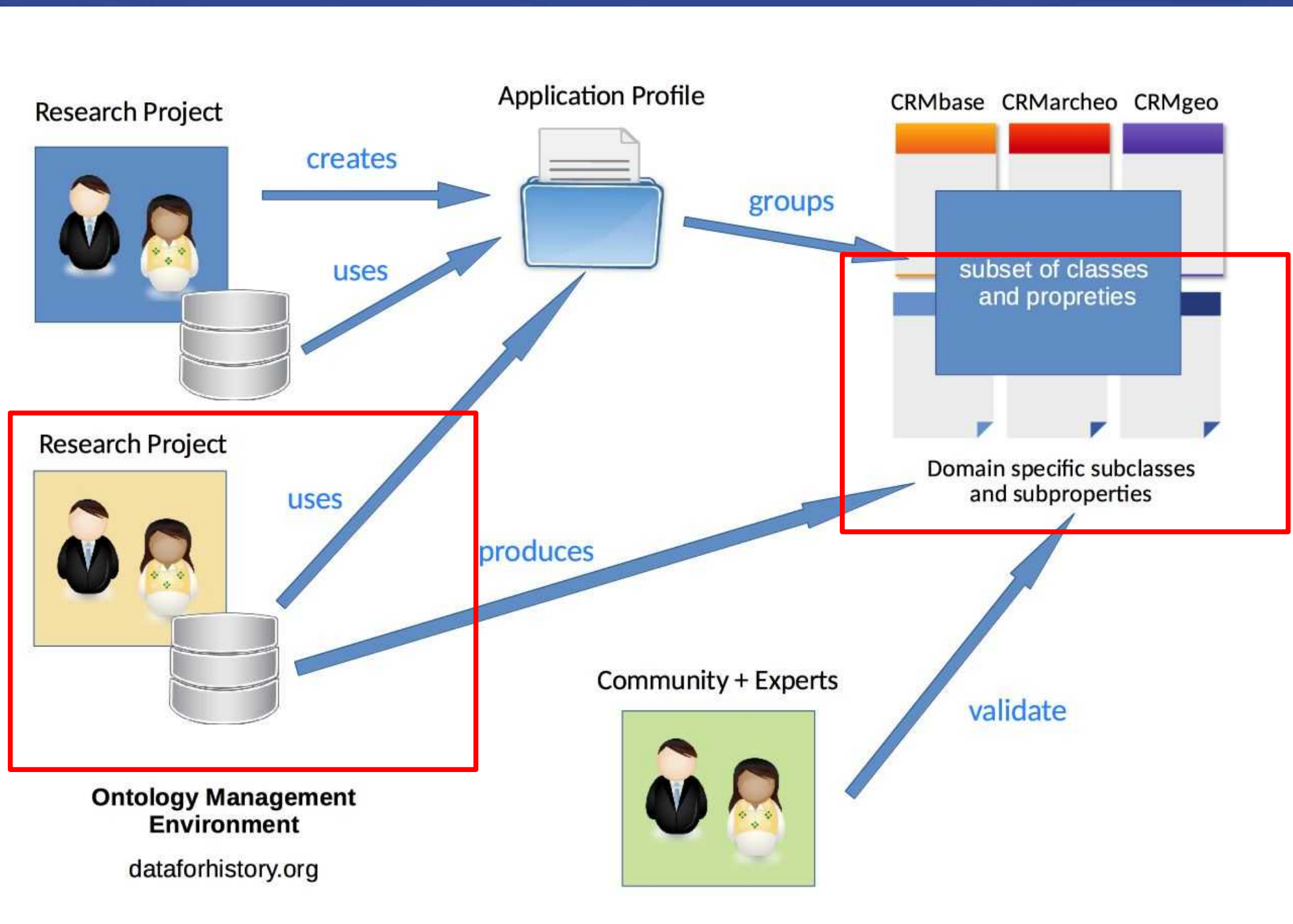
The screenshot displays the Geovistory web application interface. At the top, the browser address bar shows the URL `geovistory.com/projects/84760/edit`. The navigation bar includes a home icon, the text "Home / Your Projects / Maritime history", and a user profile icon with a "Beta" badge. A sidebar on the left contains icons for "Sources", "Entities", "Analysis", and "Stories".

The main content area features a world map with several location markers. A pop-up window titled "All ship voyages" is open, showing details for a specific location: "Date: Apr 2, 1595 AD", "Activated Place: Jakarta ID", "Geographical Place", and "Value of Place at Date: 0 show details".

Below the map is a time-series chart showing data from 1640 to 1750. The y-axis ranges from 0 to 30. The chart displays a complex, fluctuating line graph. A "feedback" button is visible in the bottom right corner of the chart area.

The text "geovistory.com" is overlaid in blue on the right side of the map. The "CESIUM Ion" logo is visible in the bottom left corner of the map area.

Geovistory : a VRE for historical research



<http://ontome.dataforhistory.org>

Man-Made Object – E22

Ship – C2

C2 Ship

Subclass of: [E22 Man-Made Object](#)

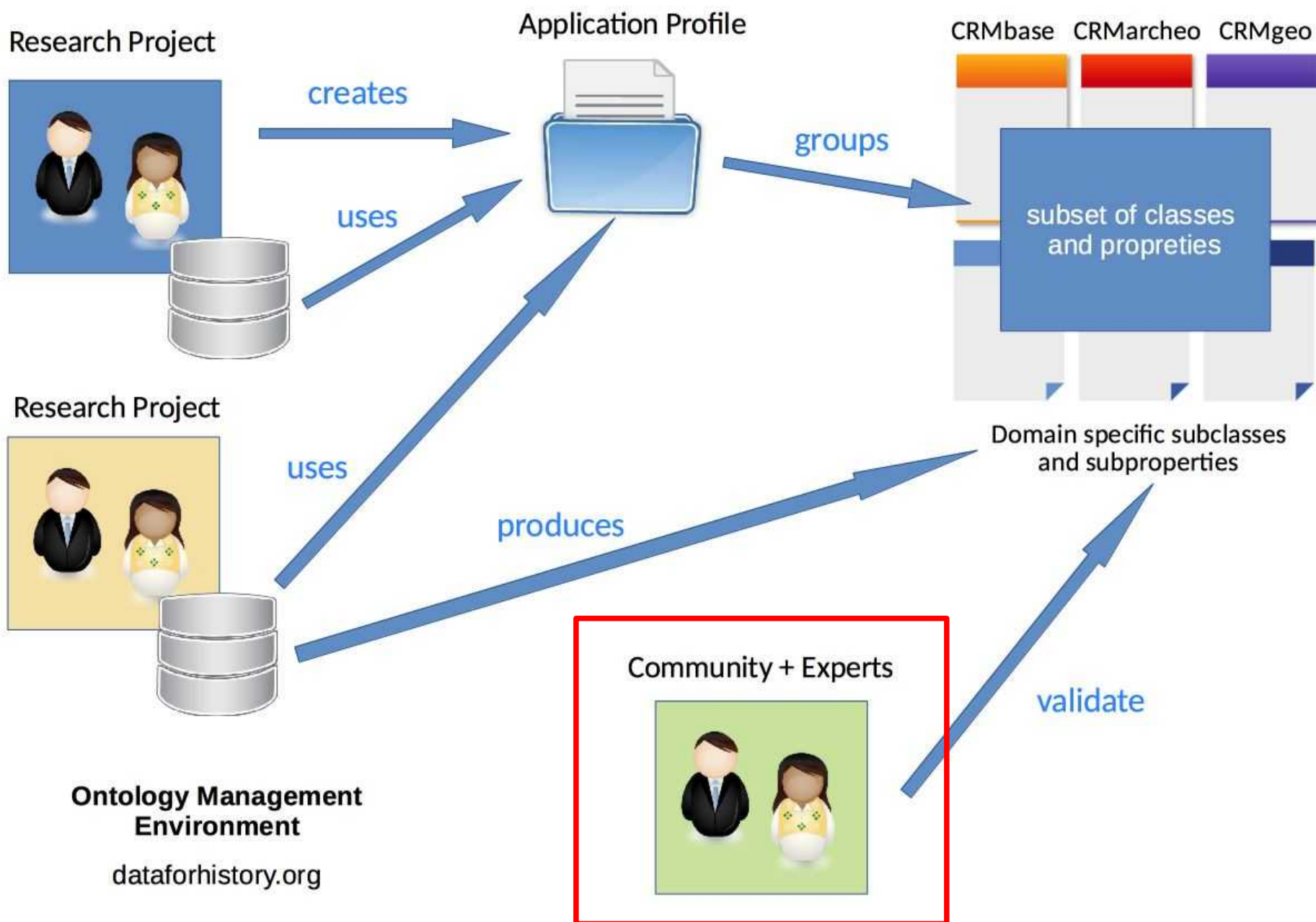
Scope note: Used to denote a watercraft that travels the world's oceans and other sufficiently deep waterways, carrying passengers or goods, or in support of specialized missions, such as defense, research and fishing.

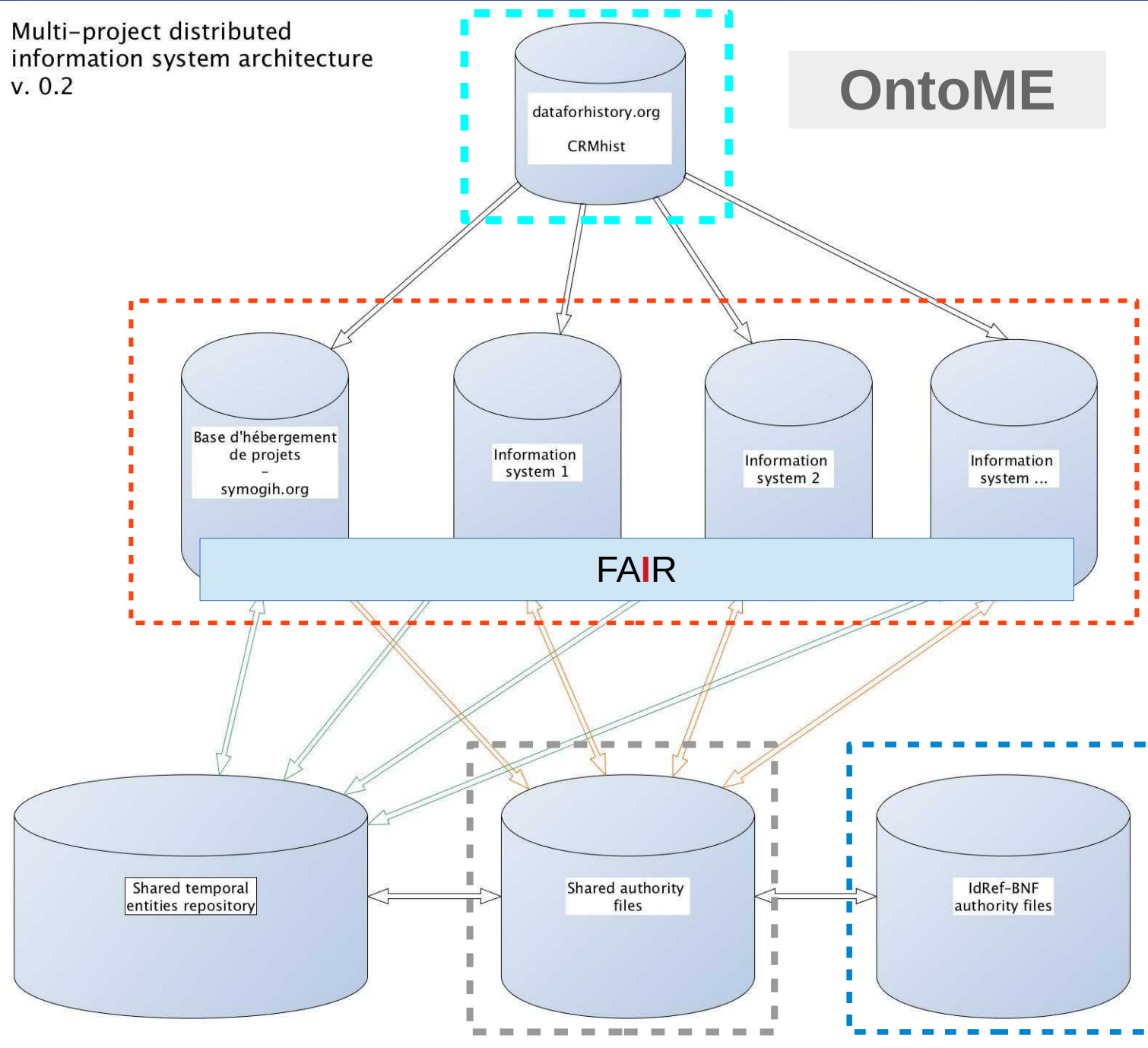
Examples: tba

In First Order Logic: $C2(x) \supset E22(x)$

Outgoing properties: [P6 has ship type](#) → [C3 Ship type](#)

Incoming properties: [C1 Ship voyage](#) → [P3 carried out by](#)
[C12 Shipbuilding](#) → [P7 has built](#)





OntoME

Project specific websites : Professeurs de droit

SYMOGIH

Références

SIPROJURIS

Le corpus » Sources dépouillées Contributeurs Statuts

Système d'information des professeurs de droit (1804-1950)



LES ENSEIGNANTS

VOIR LA LISTE

<http://siprojuris.symogih.org>

Défi données MaDICS-ADOC 2018

tinyurl.com/data-challenge-2018




Enrichir et exploiter un corpus de données historiques
publiées sous forme de LOD.

Le projet *SIPROJURIS*.



Système d'information des professeurs de droit (1804-1950)

SIPROJURIS

Bienvenue sur le site du projet SIPROJURIS.



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