

**Francesco Beretta**  
(CNRS UMR5190 LARHRA – Université de Lyon)

# **La conceptualisation de l'information factuelle**

**Université de Neuchâtel**  
**Septembre-décembre 2020**  
**(version 2.1)**

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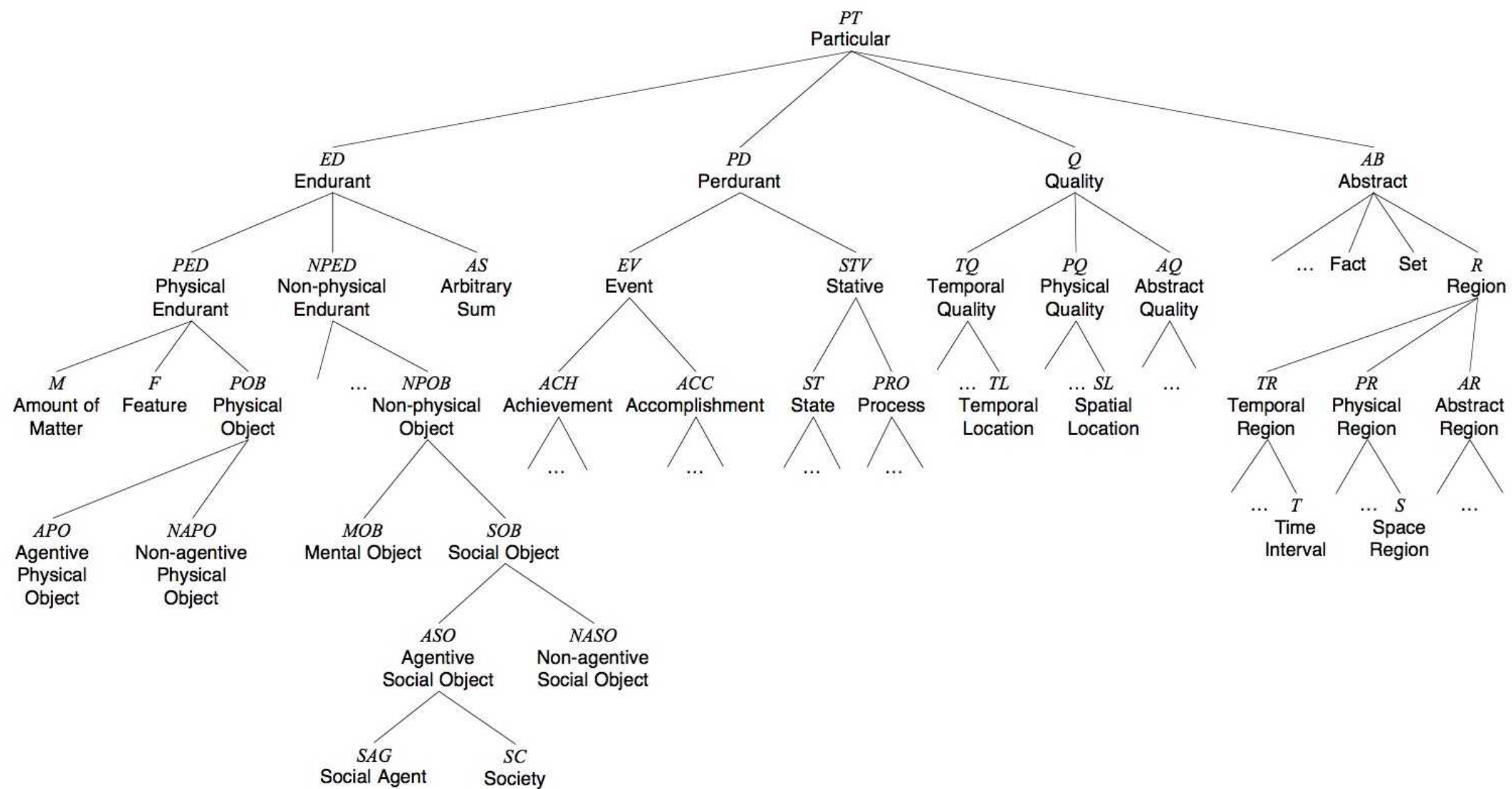
“An ontology is  
a formal explicit specification  
of a shared conceptualization  
of a domain of interest”

- « 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]

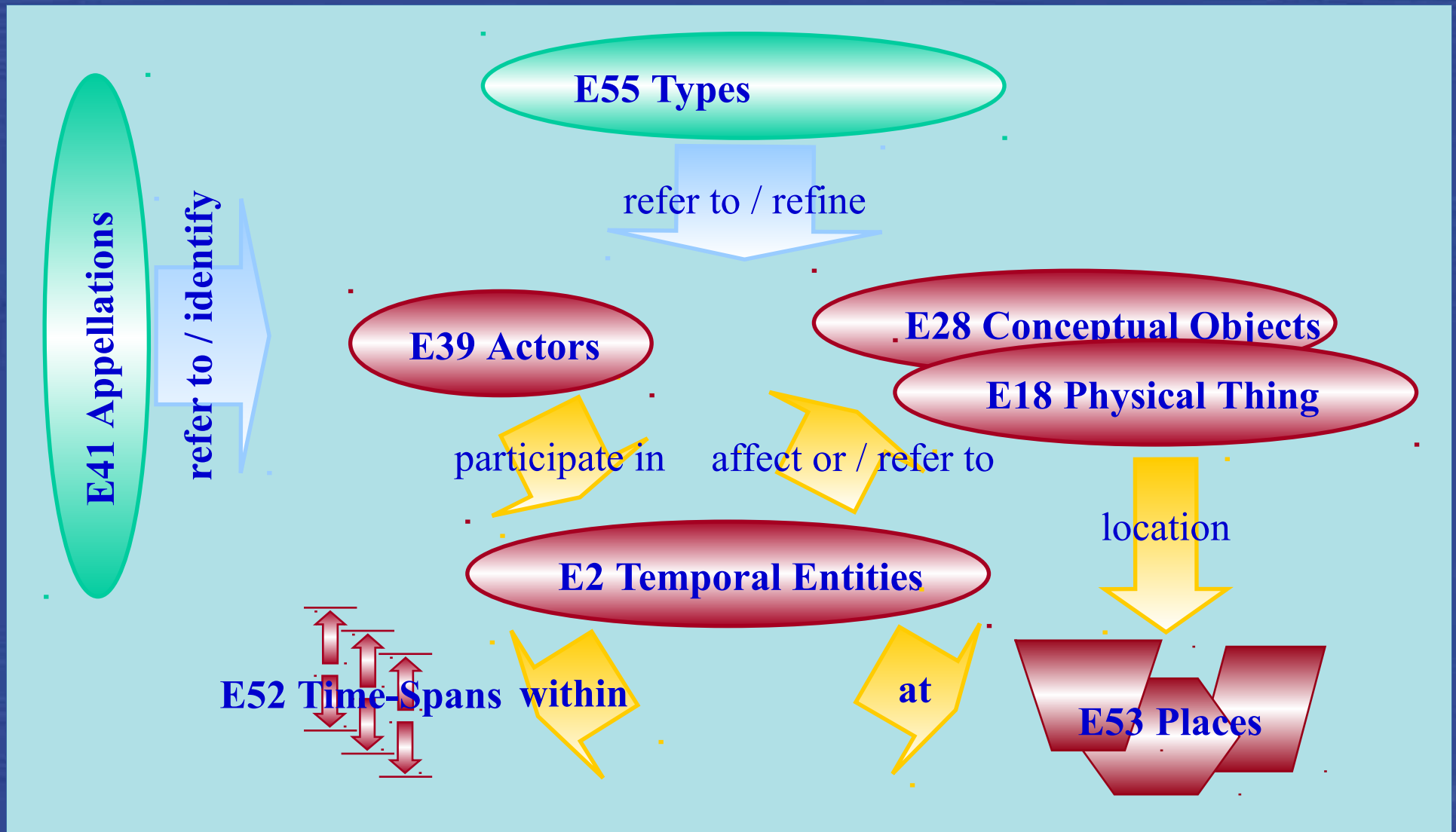
The issue of a suitable conceptualization :

**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

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Person

Group

Geographical place

Conceptual object

Conceptual object

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

Person

Person

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Person

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Conceptual object

Conceptual object

Person

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## Temporal entities

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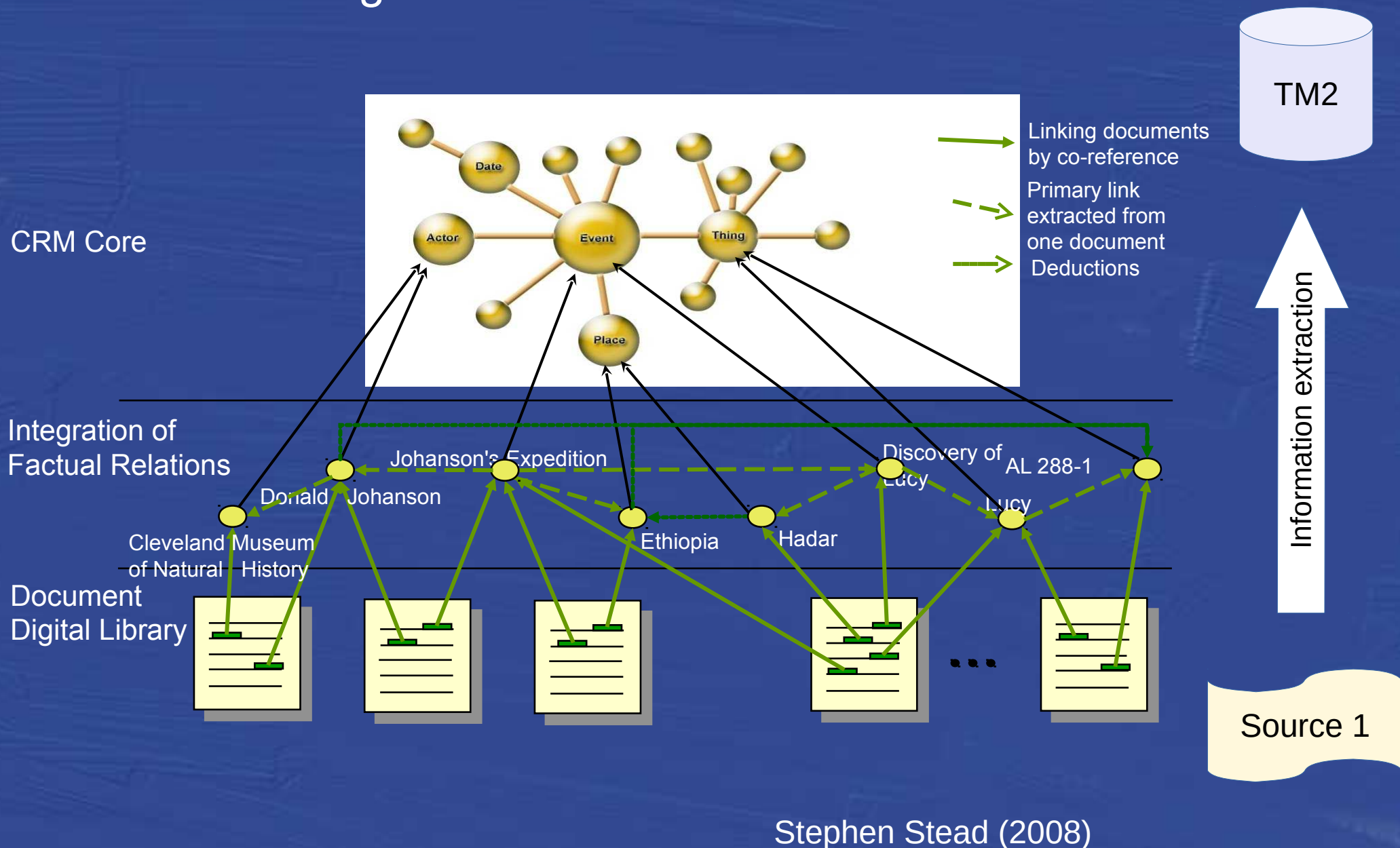
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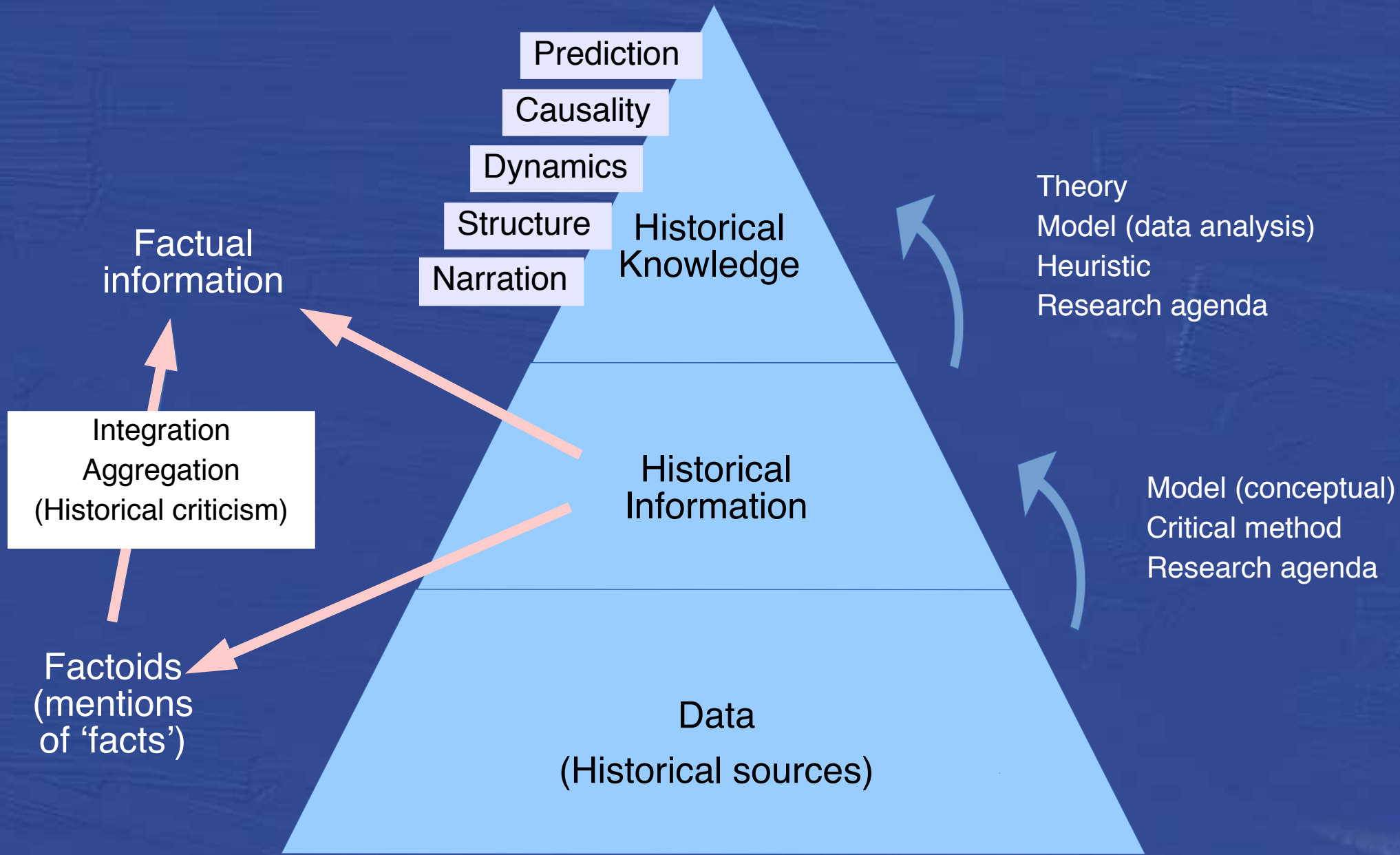
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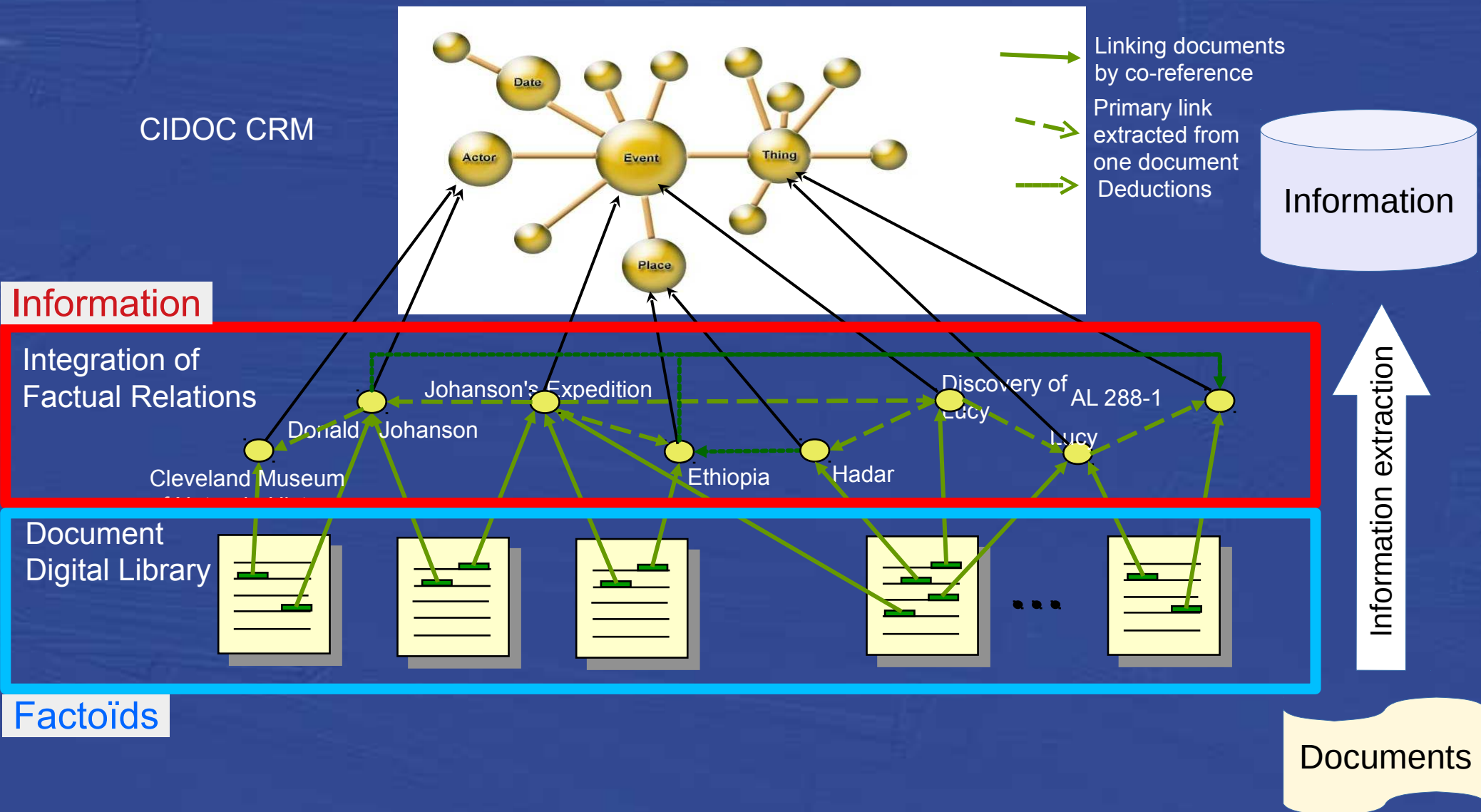
# Integration of information extracted from documents using the CIDOC CRM and its extensions



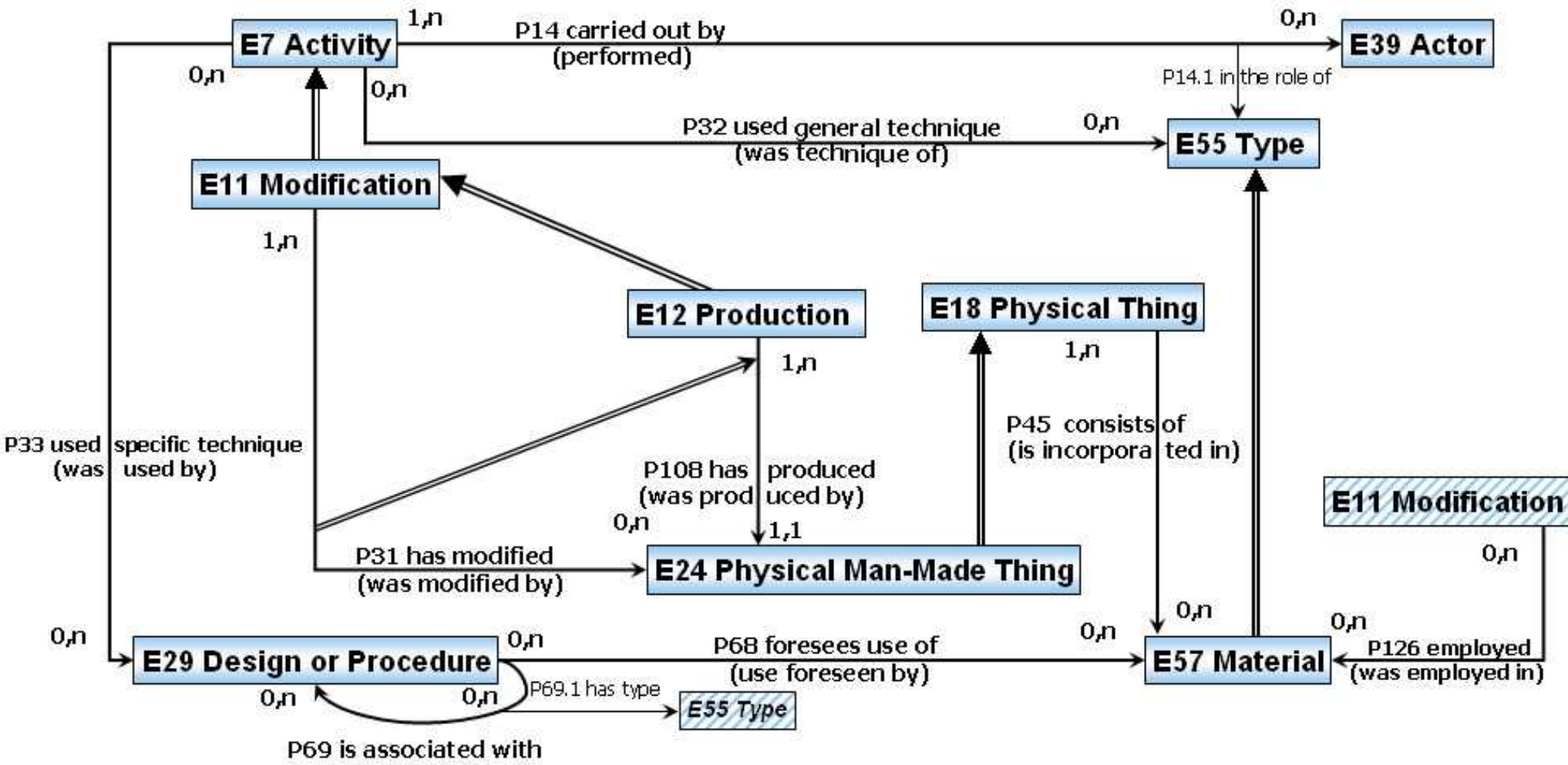




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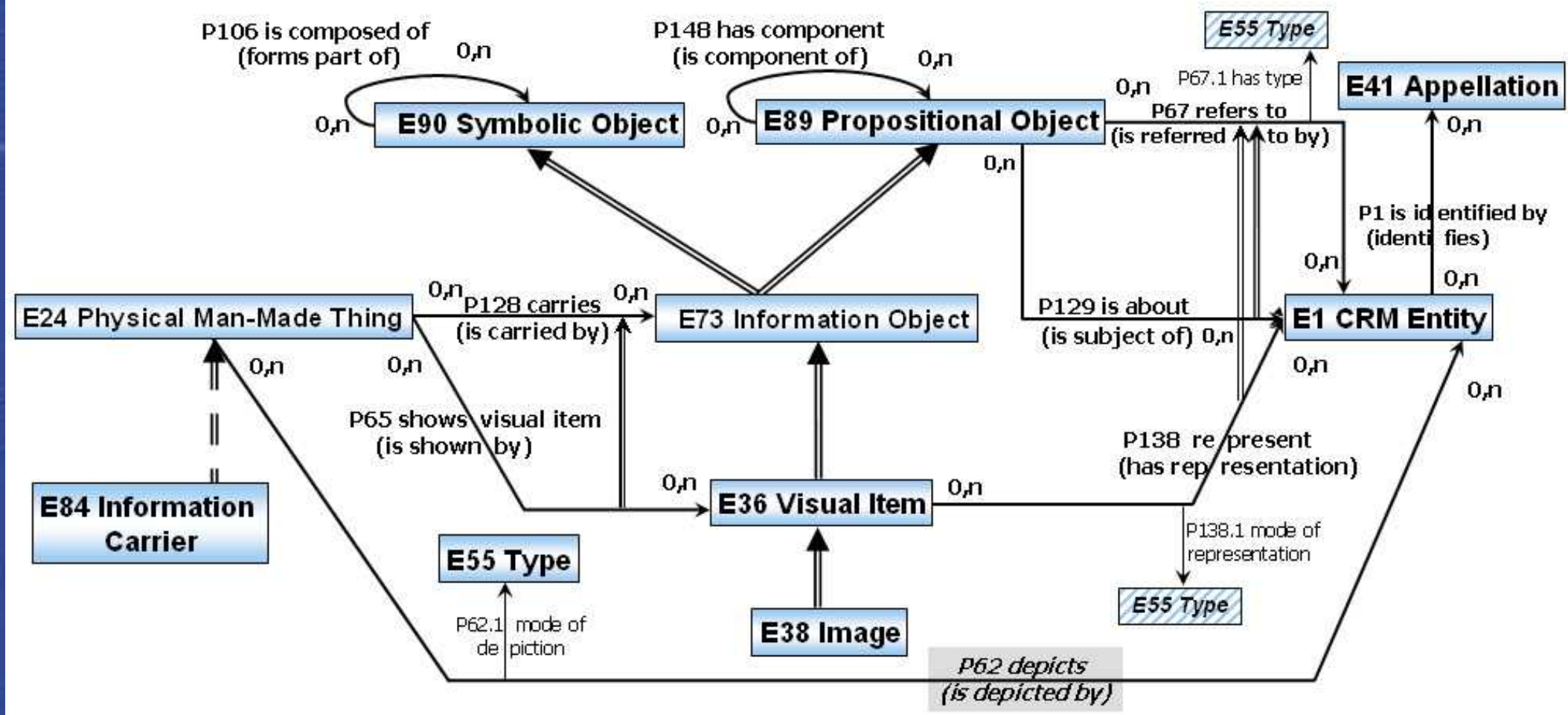


# MATERIAL AND TECHNIQUE INFORMATION



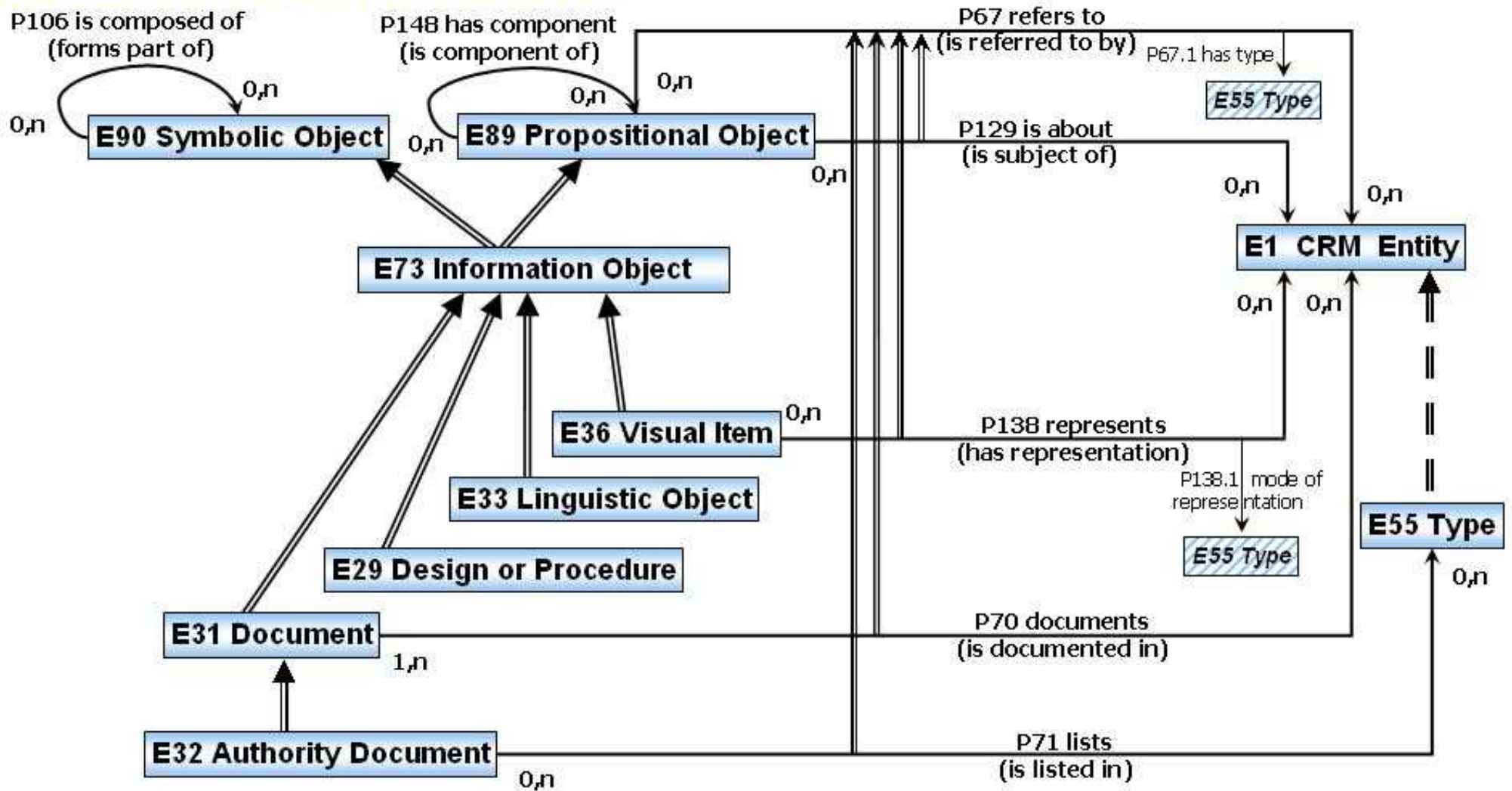
Functional overview: Material and Technique Information .

# IMAGE INFORMATION, OBJECTS AND CARRIERS



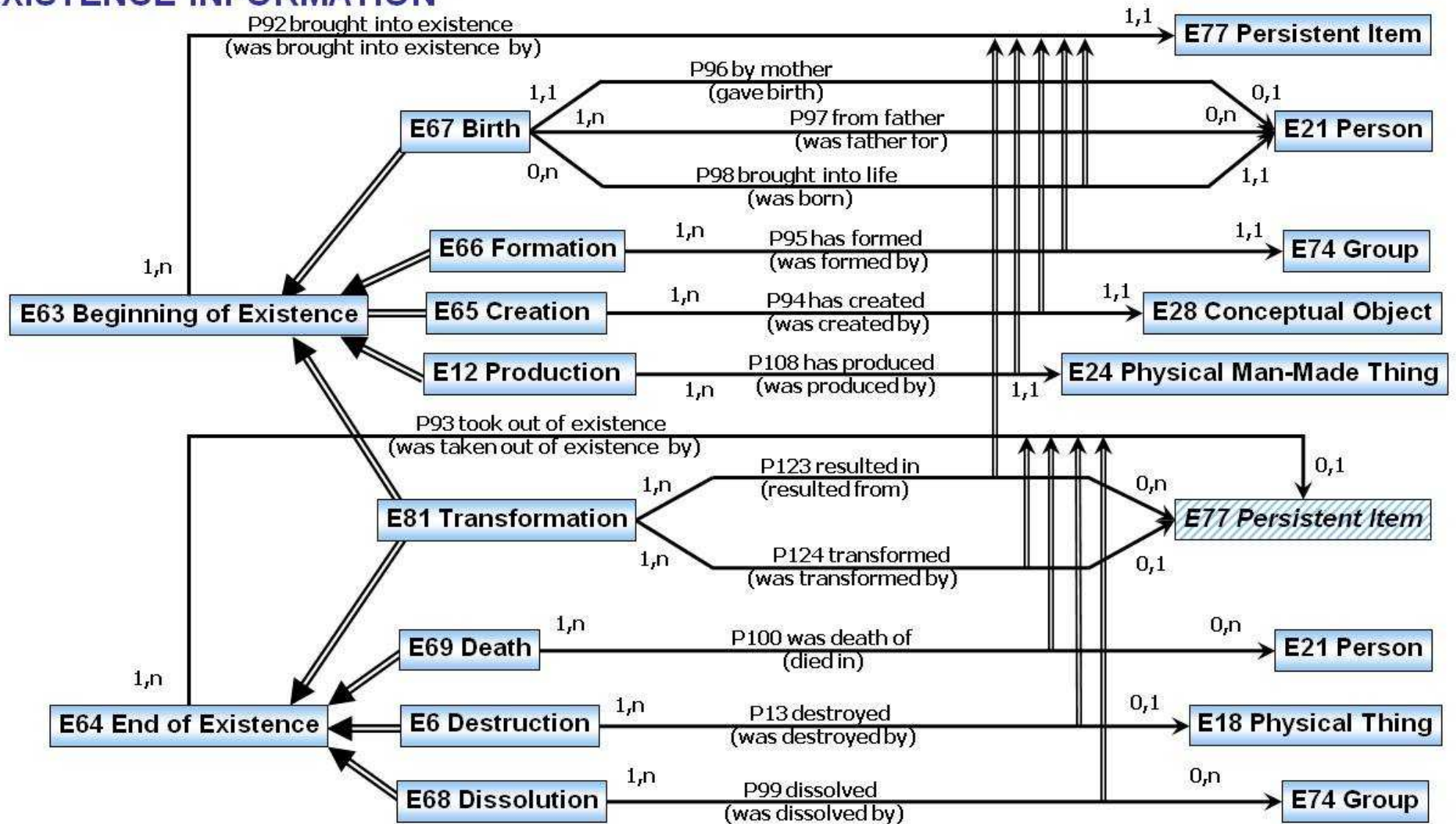
Functional overview: Image Information, Objects and Carriers .

# DOCUMENTATION and REFERENCES



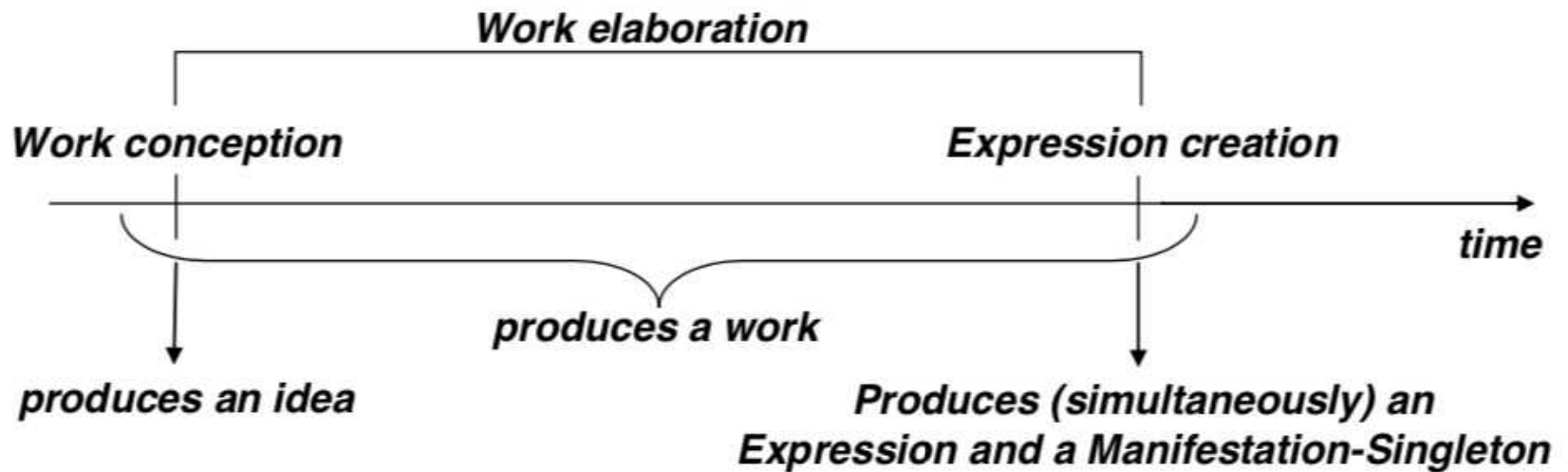
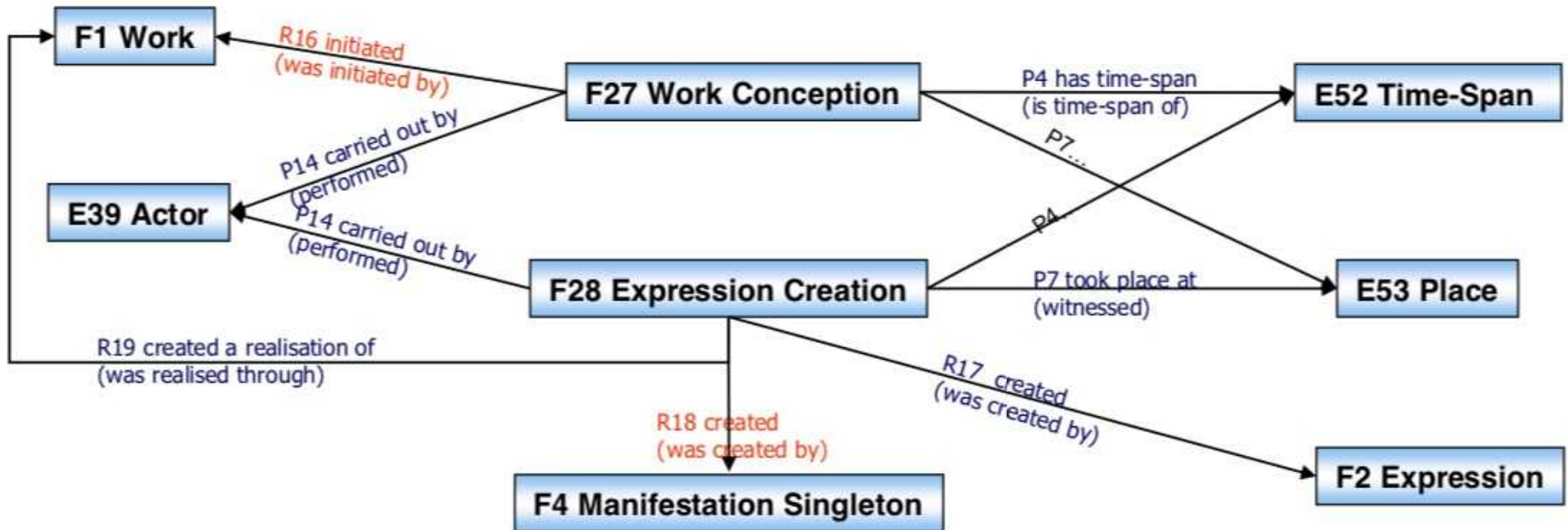
Functional overview: Documentation and References .

# EXISTENCE INFORMATION



Functional overview: Existence Information .

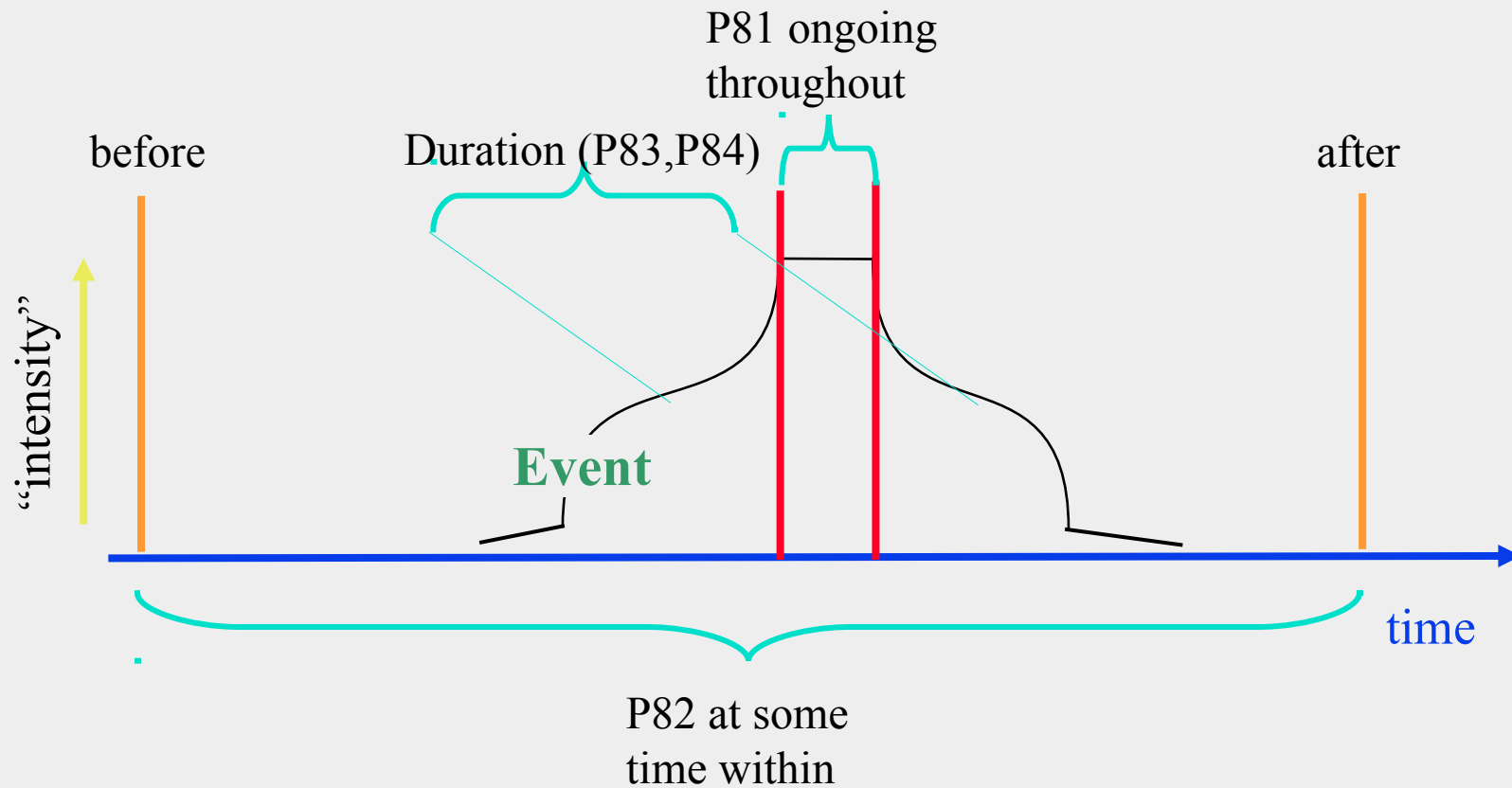
# Work and Time



FRBRoo 2.4, Figure 1, page 14 – Releases

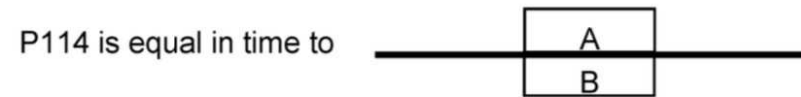
# The CIDOC CRM

## Time Uncertainty, Certainty and Duration

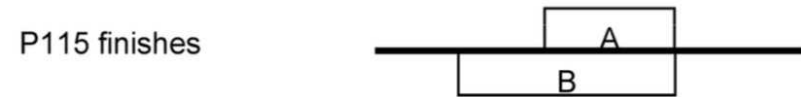


Stephen Stead (2008)

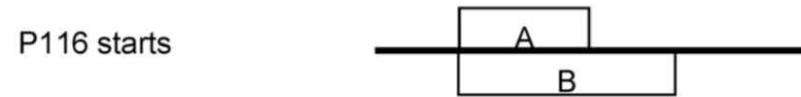
# The CIDOC CRM P114-120 'Allen' properties (James F. Allen)



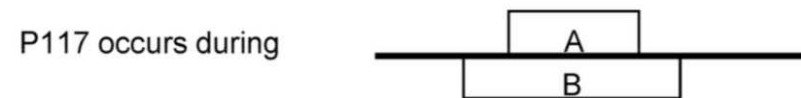
$$A_s = B_s \ \& \ A_e = B_e \Leftrightarrow (A_{ss} = B_{ss} \ \& \ A_{se} = B_{se}) \ \& \ (A_{es} = B_{es} \ \& \ A_{ee} = B_{ee})$$



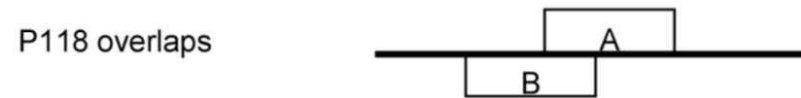
$$A_s > B_s \ \& \ A_e = B_e \Leftrightarrow (B_{ss} < A_{ss} \ \& \ B_{se} < A_{se}) \ \& \ (B_{es} = A_{es} \ \& \ B_{ee} = A_{ee})$$



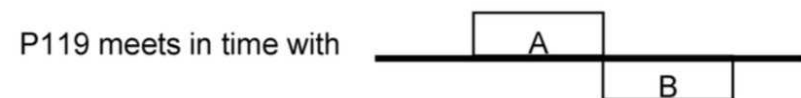
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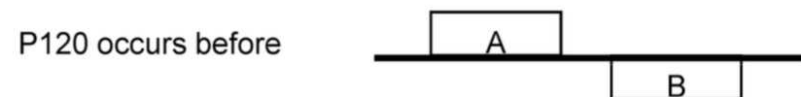
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$$B_s < A_s \ \& \ A_s < B_e \ \& \ B_e < A_e \Leftrightarrow (B_{ss} < A_{ss} \ \& \ B_{se} < A_{se}) \ \& \ (A_{ss} < B_{es} \ \& \ A_{se} < B_{ee}) \ \& \ (B_{es} < A_{es} \ \& \ B_{ee} < A_{ee})$$



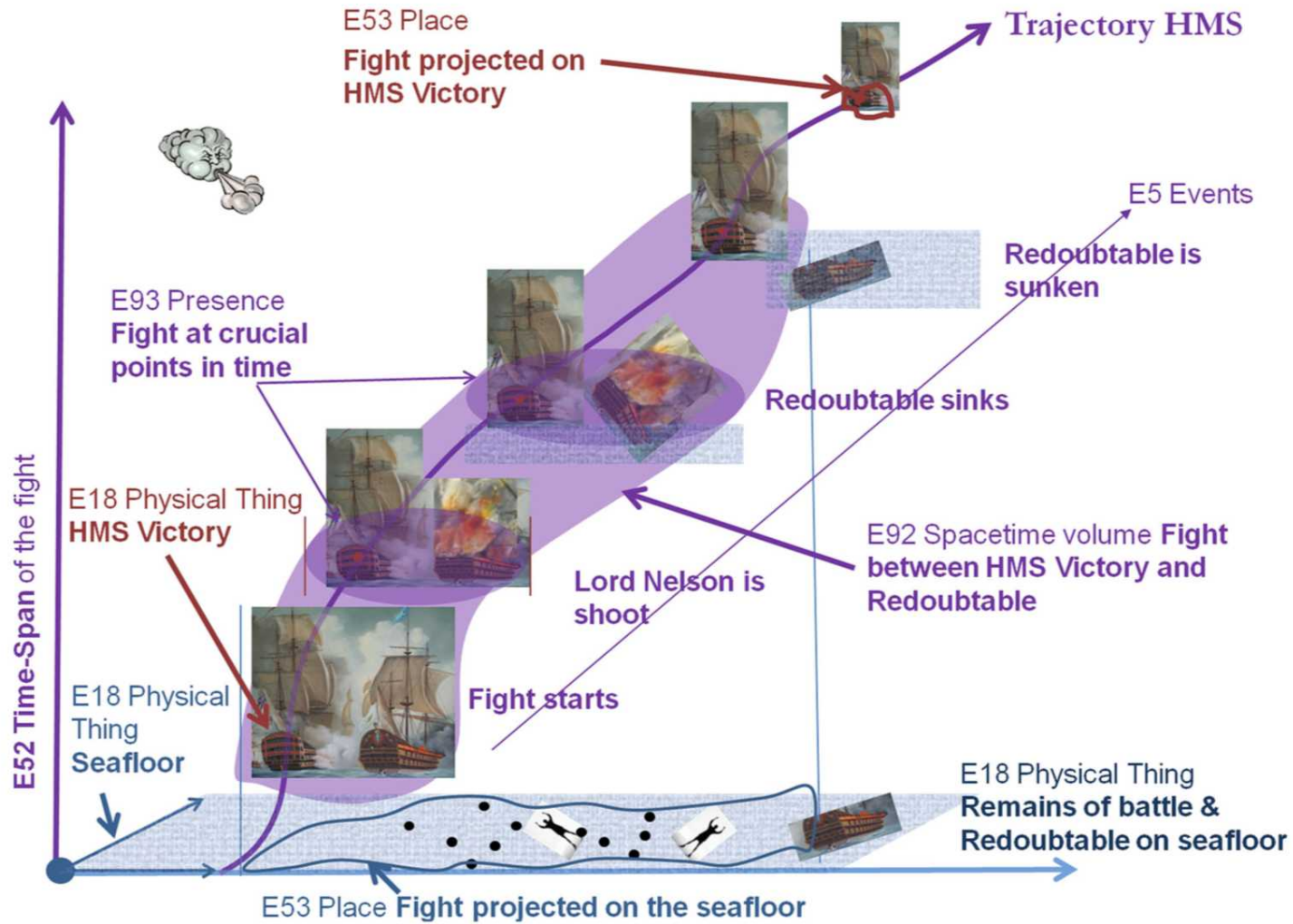
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J. Holmen et Ch.-E. Ore (2010)





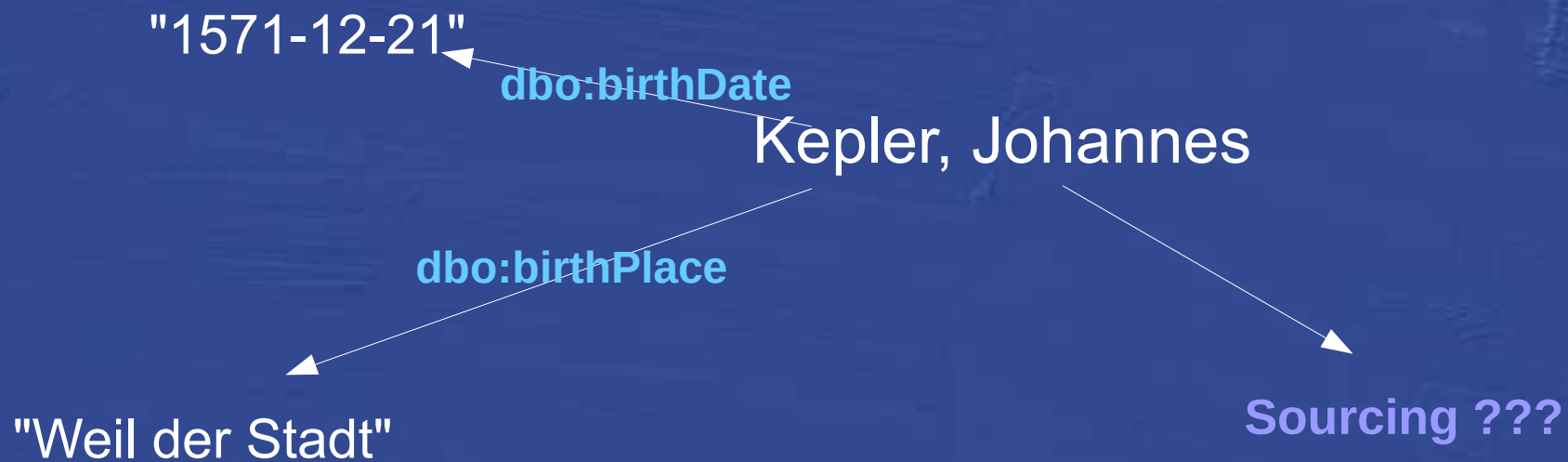
**Fig. 2** The fight of the HMS Victory and the Redoubtable in the Battle of Trafalgar illustrating Spacetime volume (E92) and Presence (E93) and their projection to different Places (E53)

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 !

