Francesco Beretta

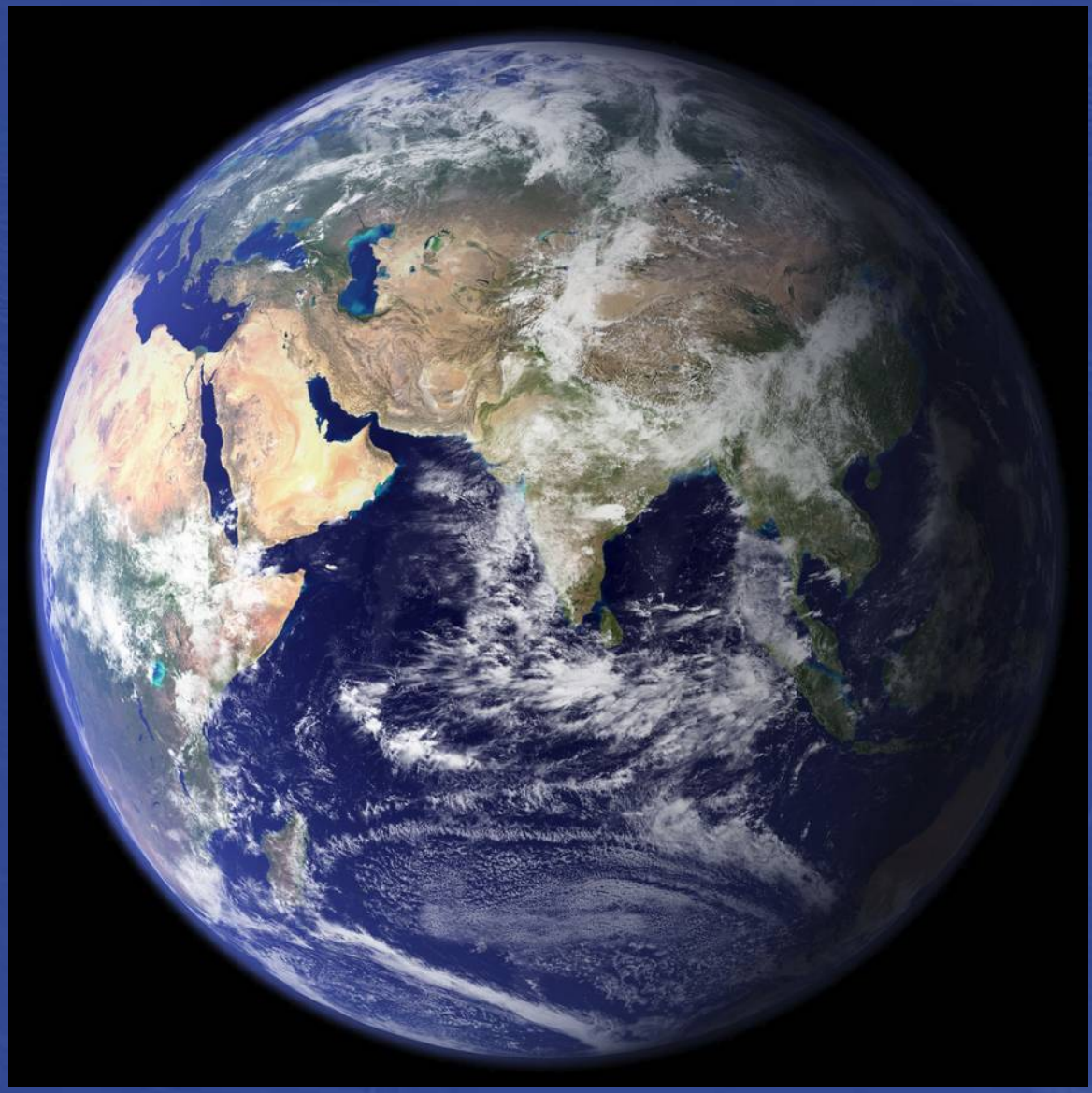
CNRS UMR5190 LARHRA – Université de Lyon

Université de Neuchâtel

Représentations, Pyramide DIK, Graphes d'information

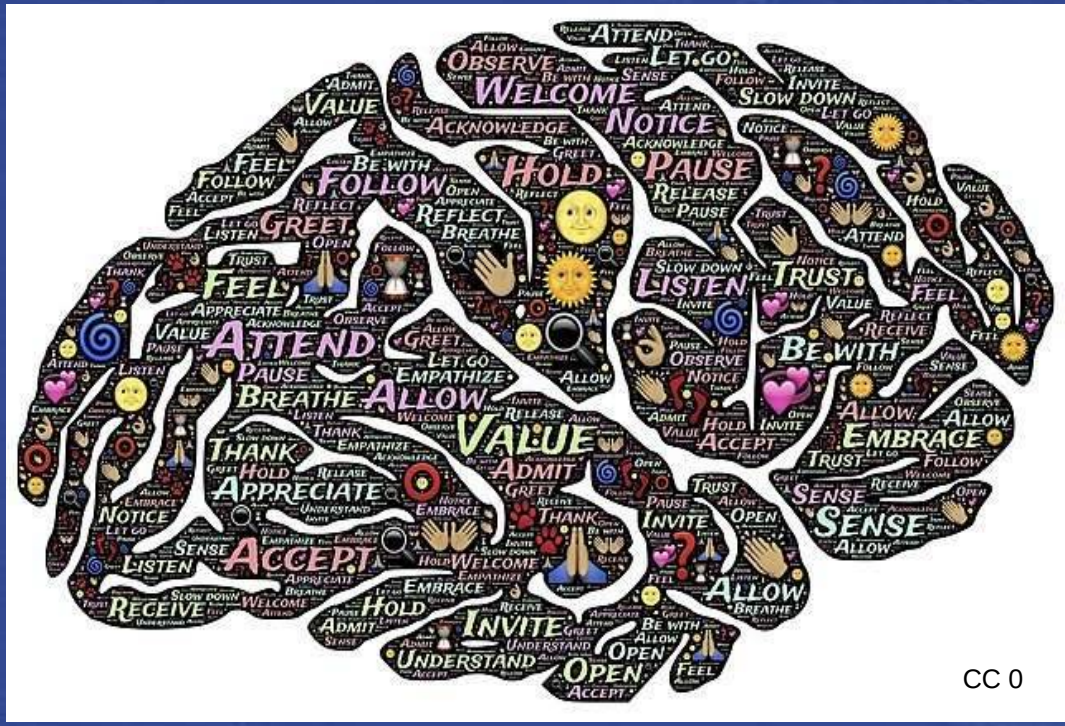
Version courte 1.0

Material and biological world



Mental reality

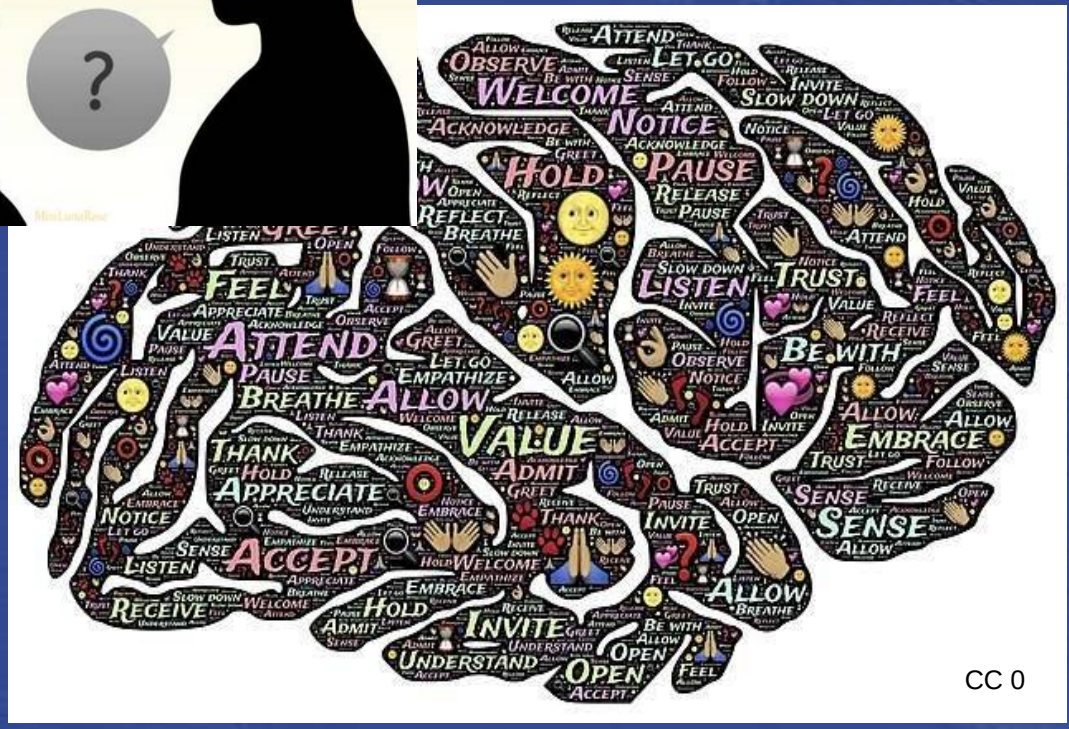
Material and biological world



Social reality

Mental reality

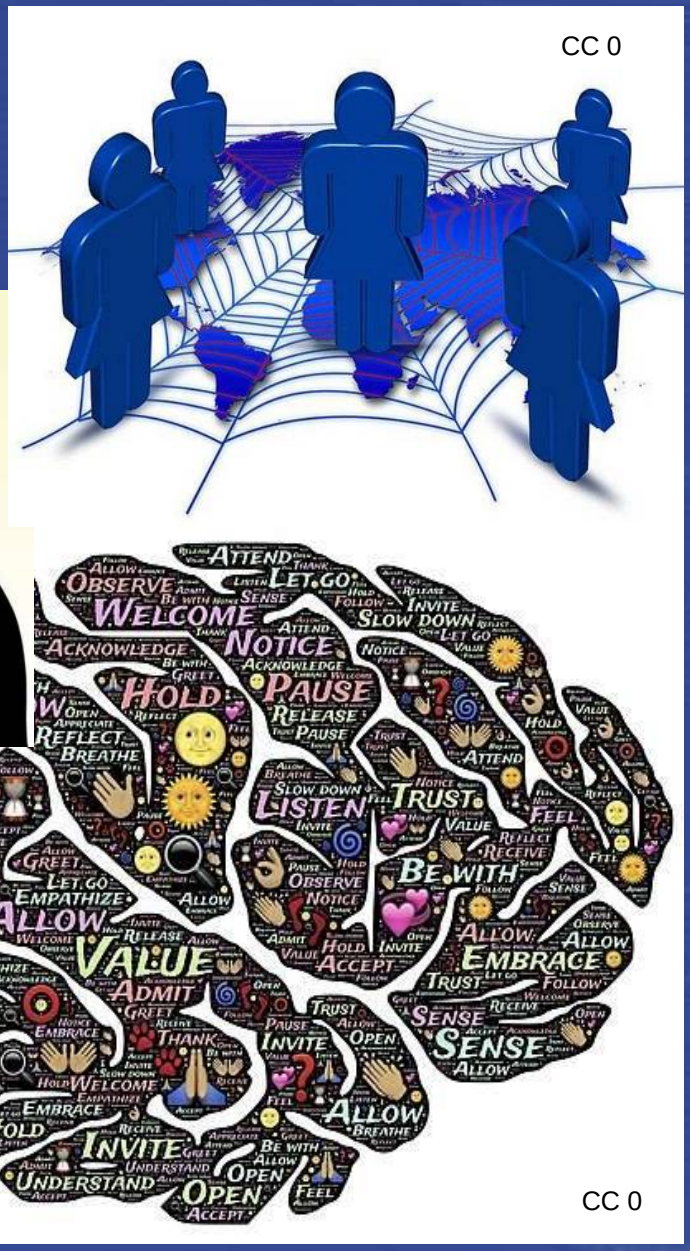
Material and biological world

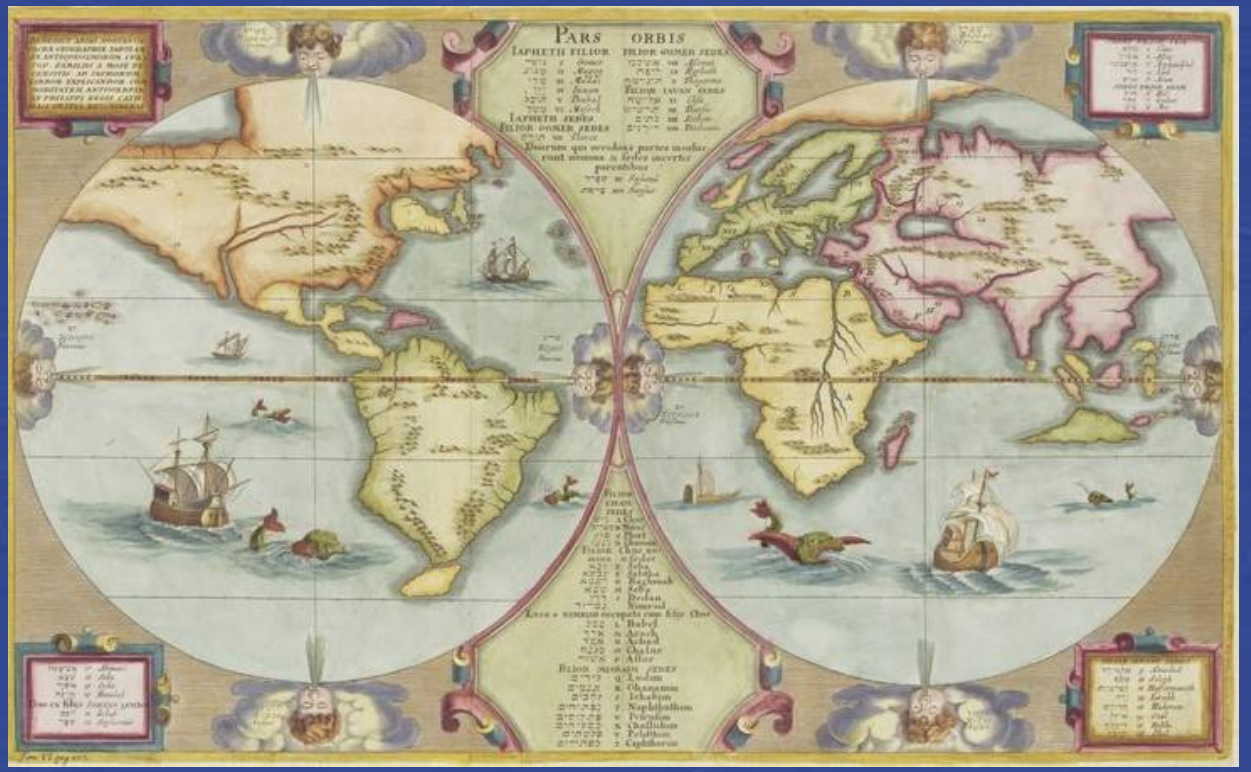


Social reality

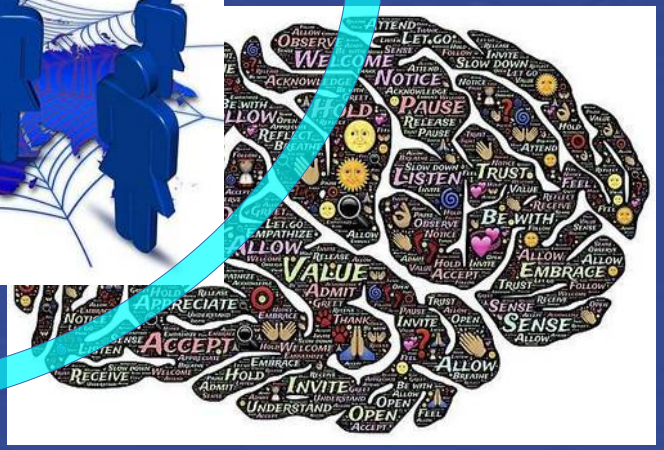
Mental reality

Material and biological world




PARS ORBIS

CC 0


WELCOME
NOTICE
PAUSE
RELEASE
LISTEN
TRUST
VALUE
ADMIT
ACCEPT
RECEIVE
INVITE
UNDERSTAND
OPEN
ALLOW
EMBRACE
SENSE
BE WITH

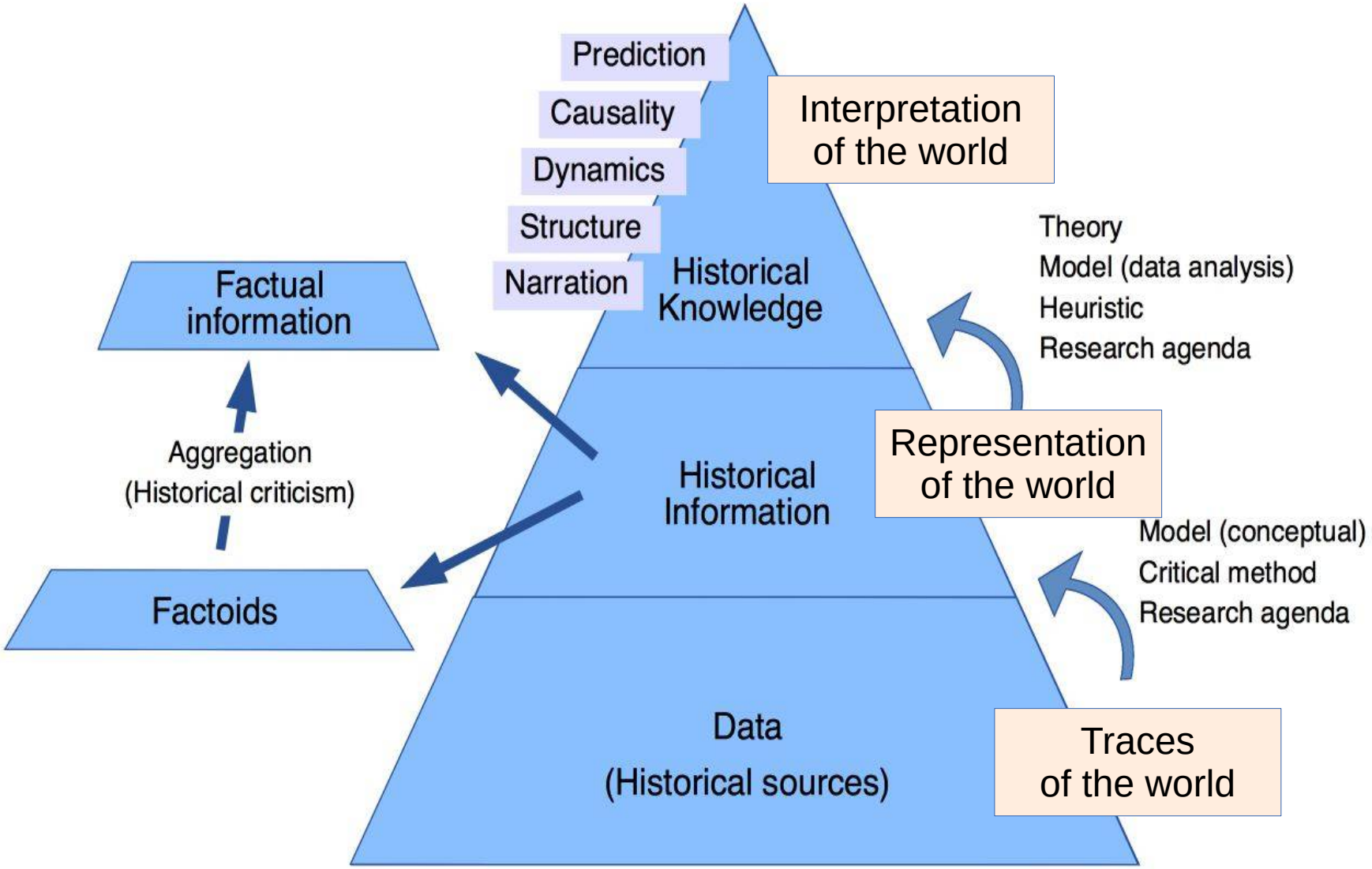
CC 0

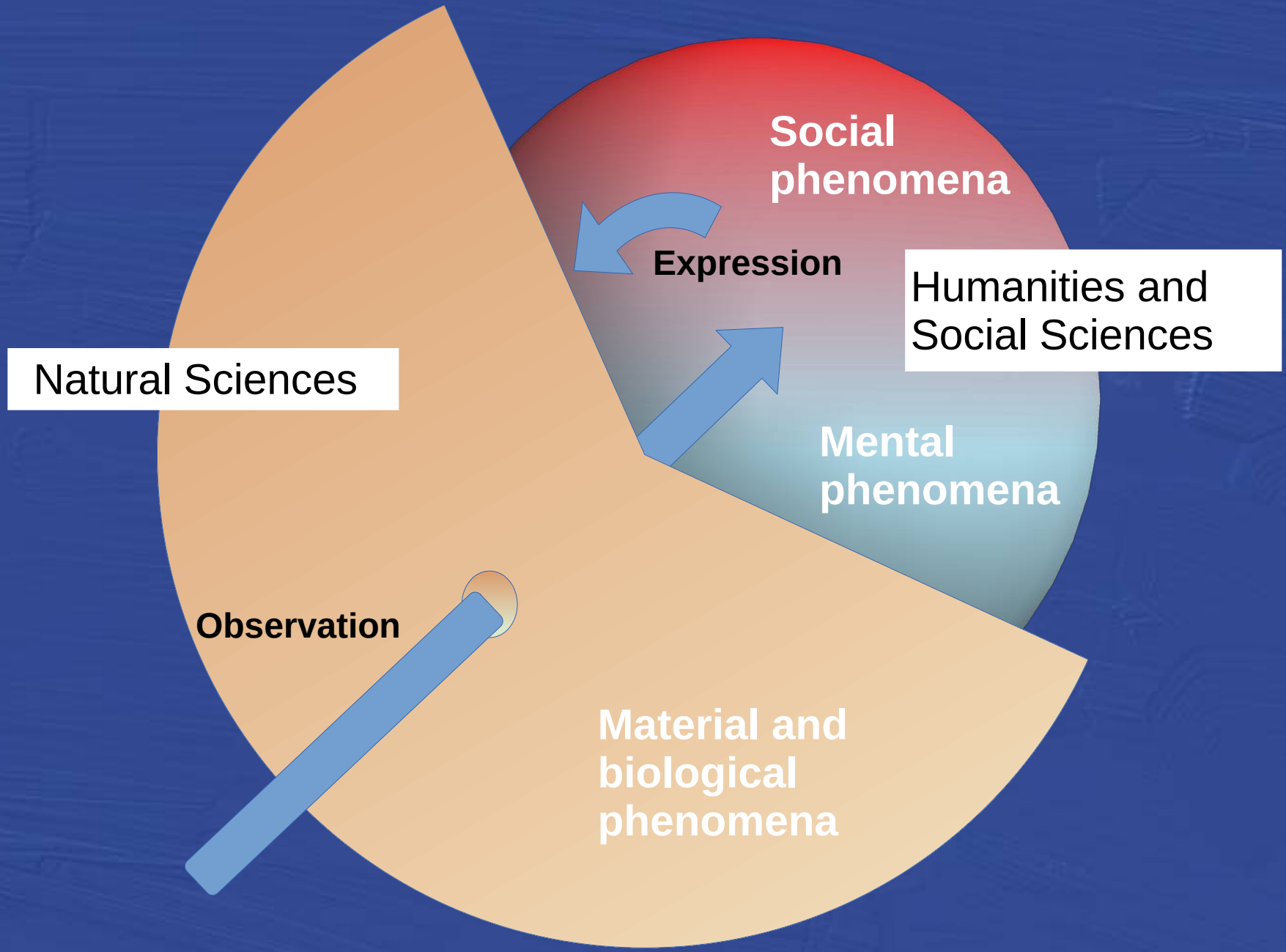
Social representations

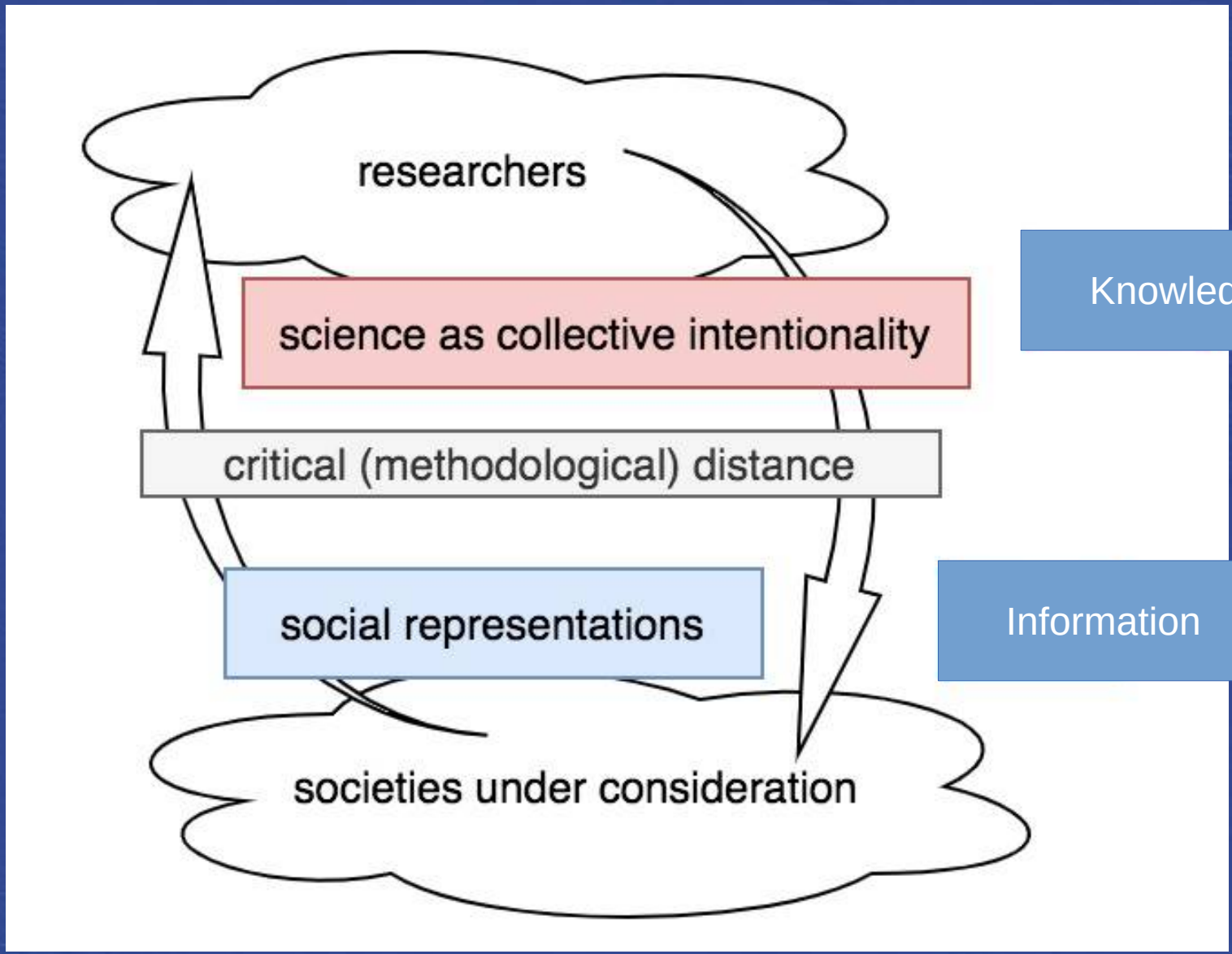
Social representations

Individual minds

Individual minds

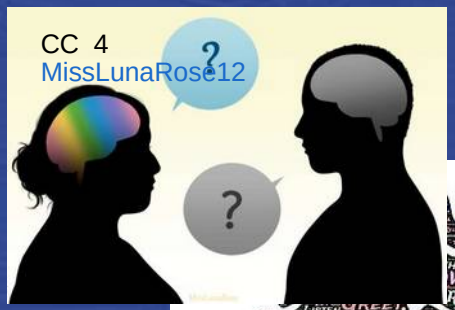



Social phenomena
Expression
Humanities and Social Sciences
Natural Sciences
Mental phenomena
Observation
Material and biological phenomena

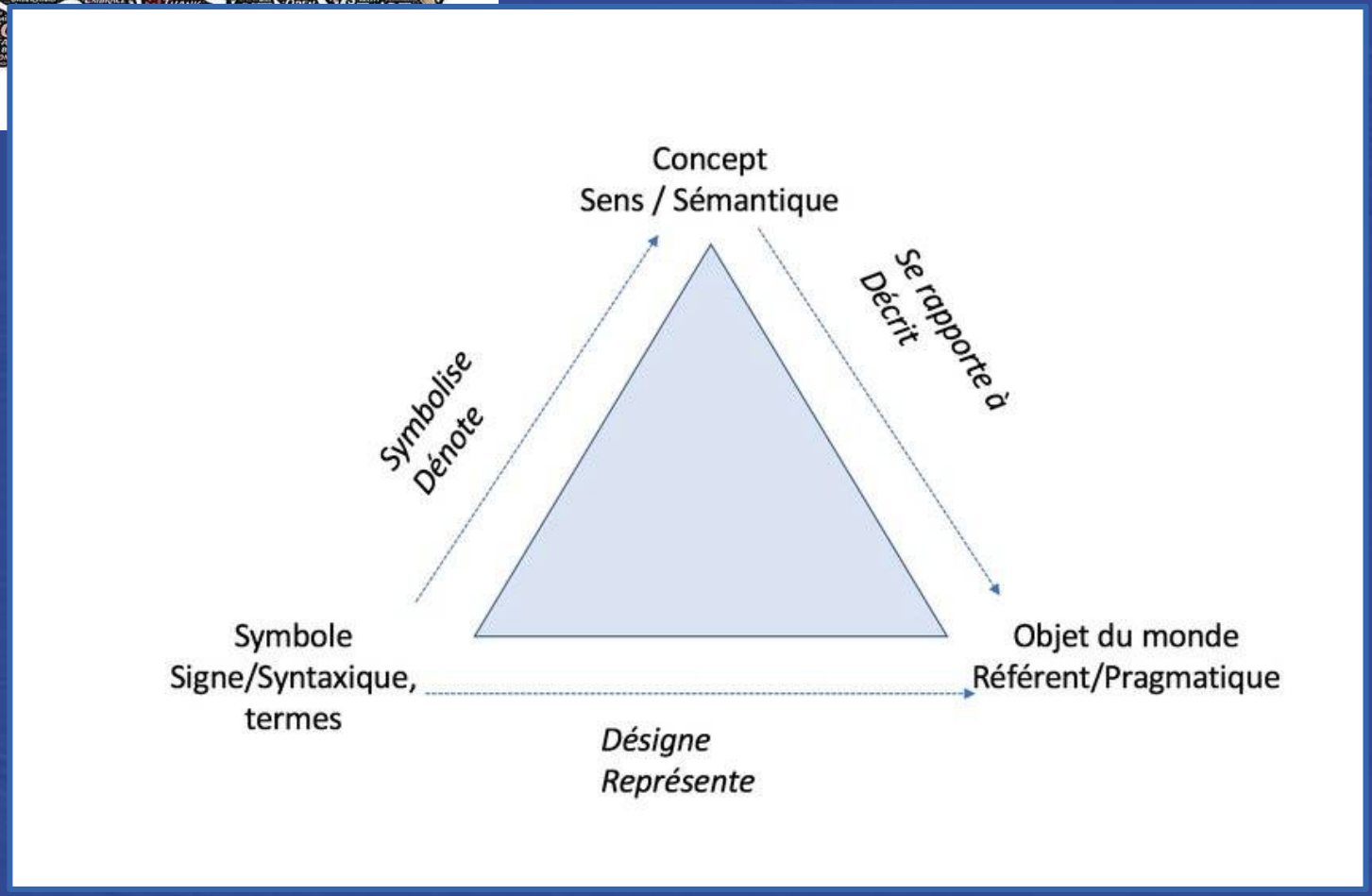

researchers
science as collective intentionality
critical (methodological) distance
social representations
societies under consideration
Knowledge
Information

Information as **representation** of the world :

Social Representations (Collective Intentionality)

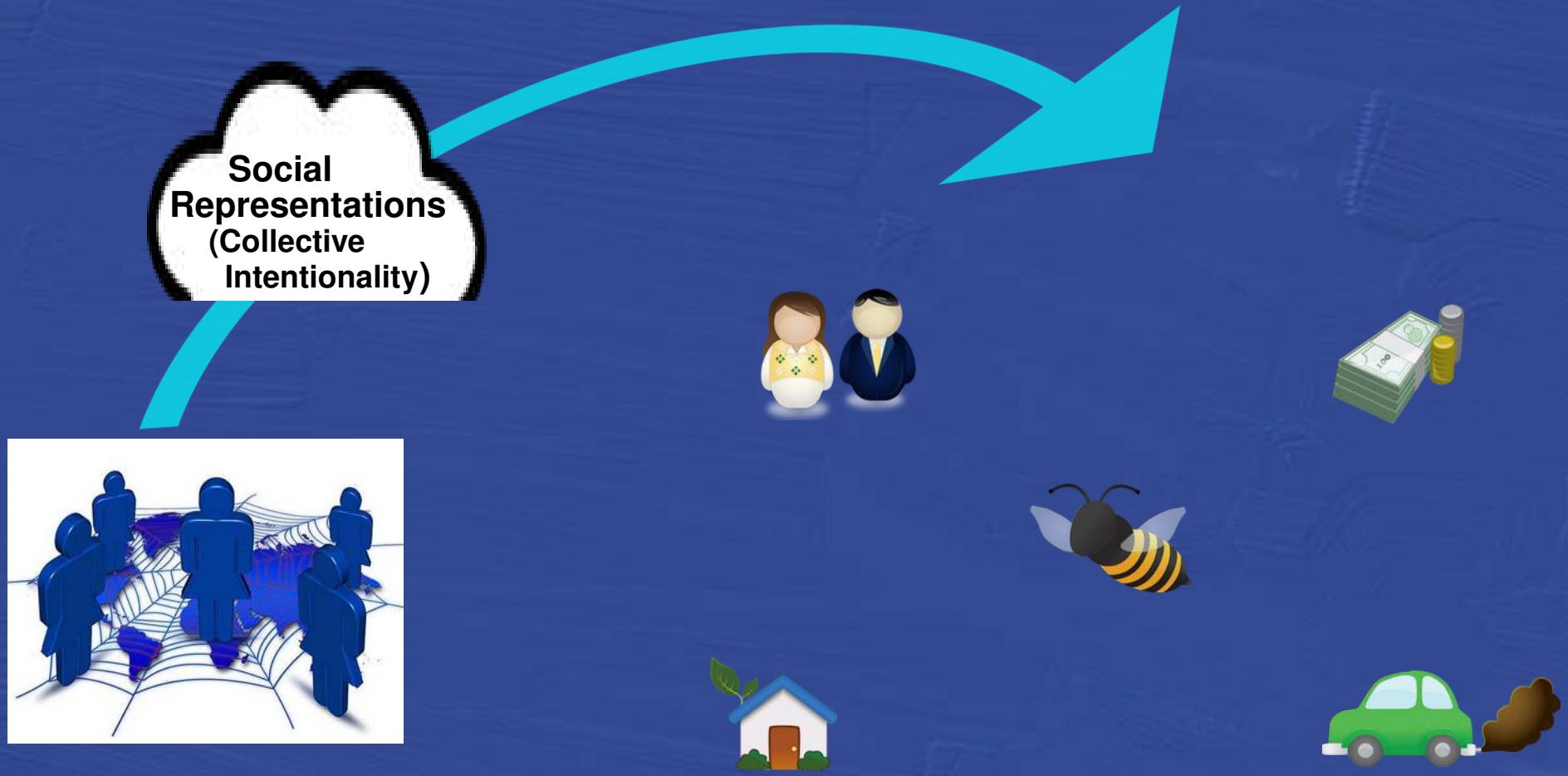


Source de l'image du triangle sémiotique: « Textes : Le langage peut-il rapprocher les hommes ? », https://philoind.blogspot.com/p/textes-le-langage-peut-il-rapprocher.html



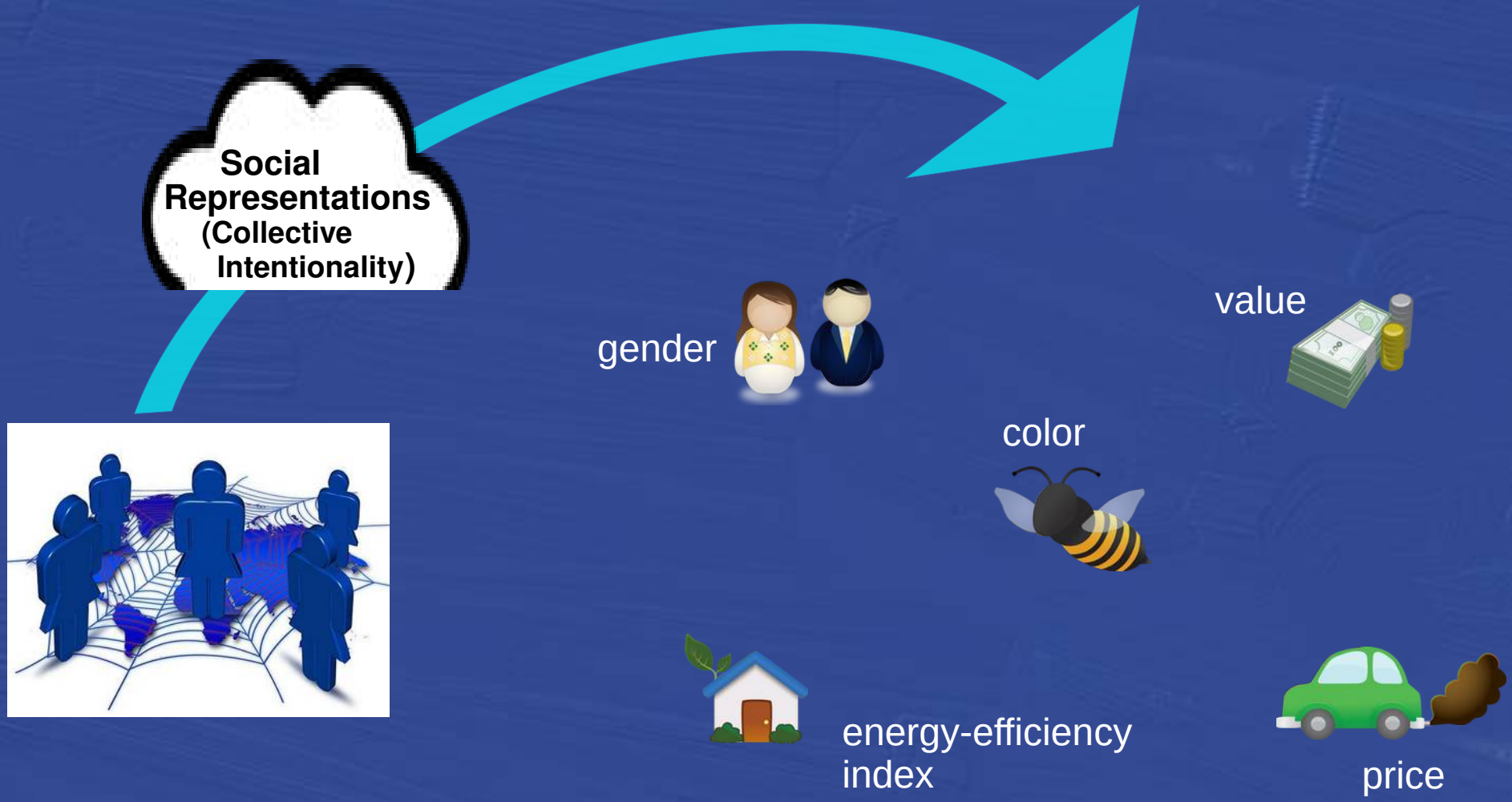
Information as **representation** of the world :

- representation of the **objects** in the world



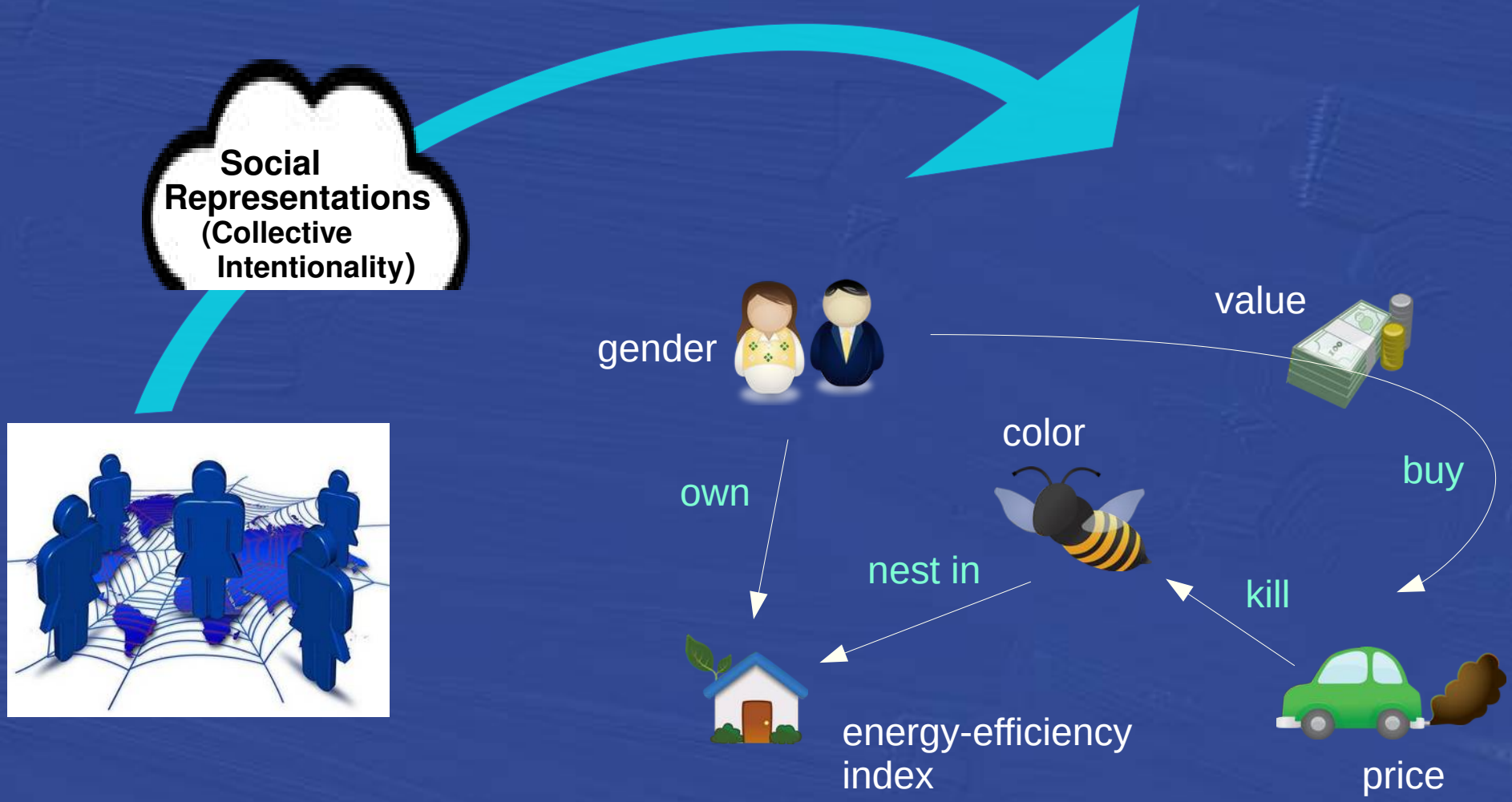
Information as **representation** of the world :

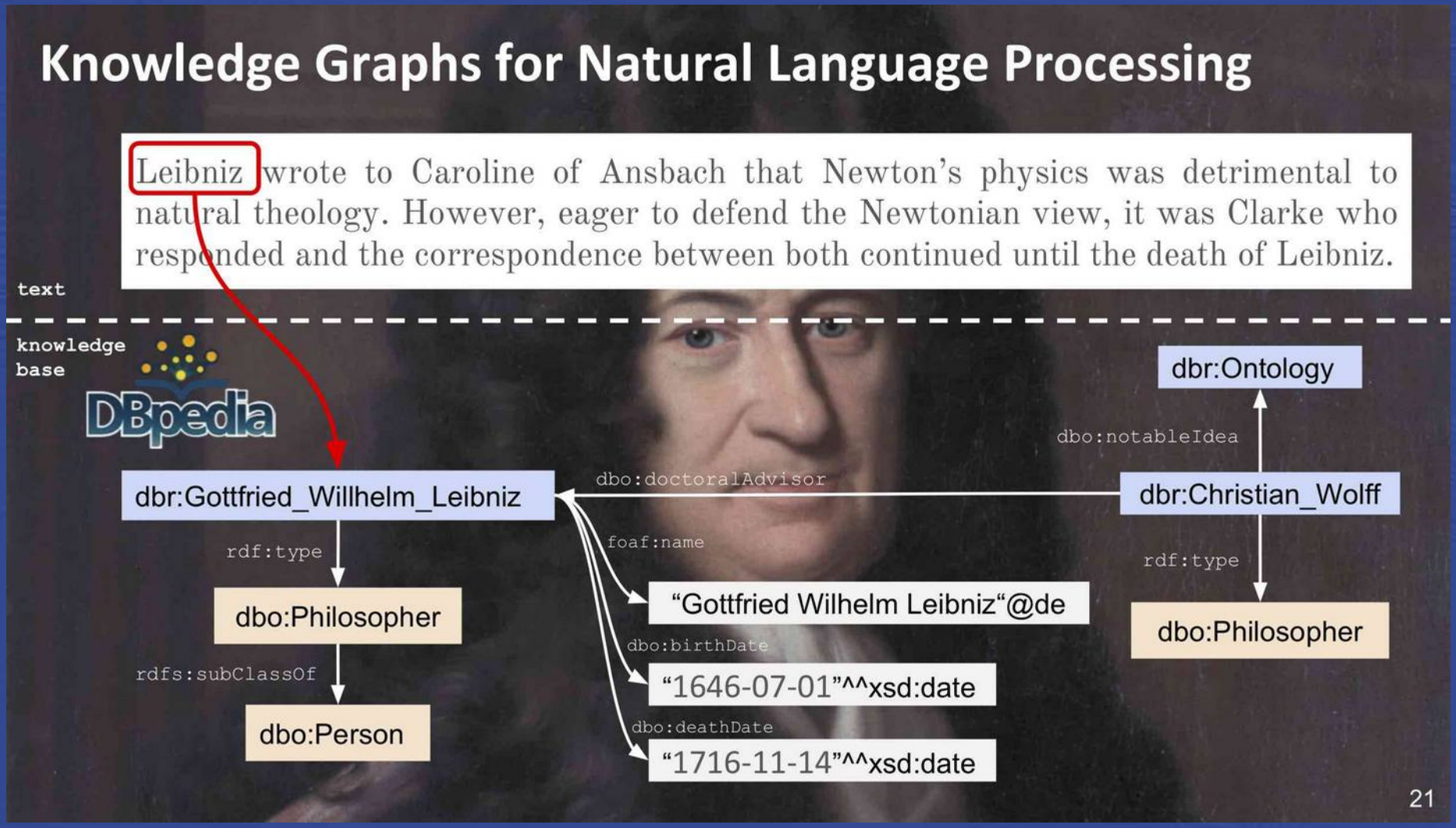
- representation of the **objects** in the world
- of their **properties** (qualities)



Information as **representation** of the world :

- representation of the **objects** in the world
- of their **properties** (qualities)
- of their **relationships**

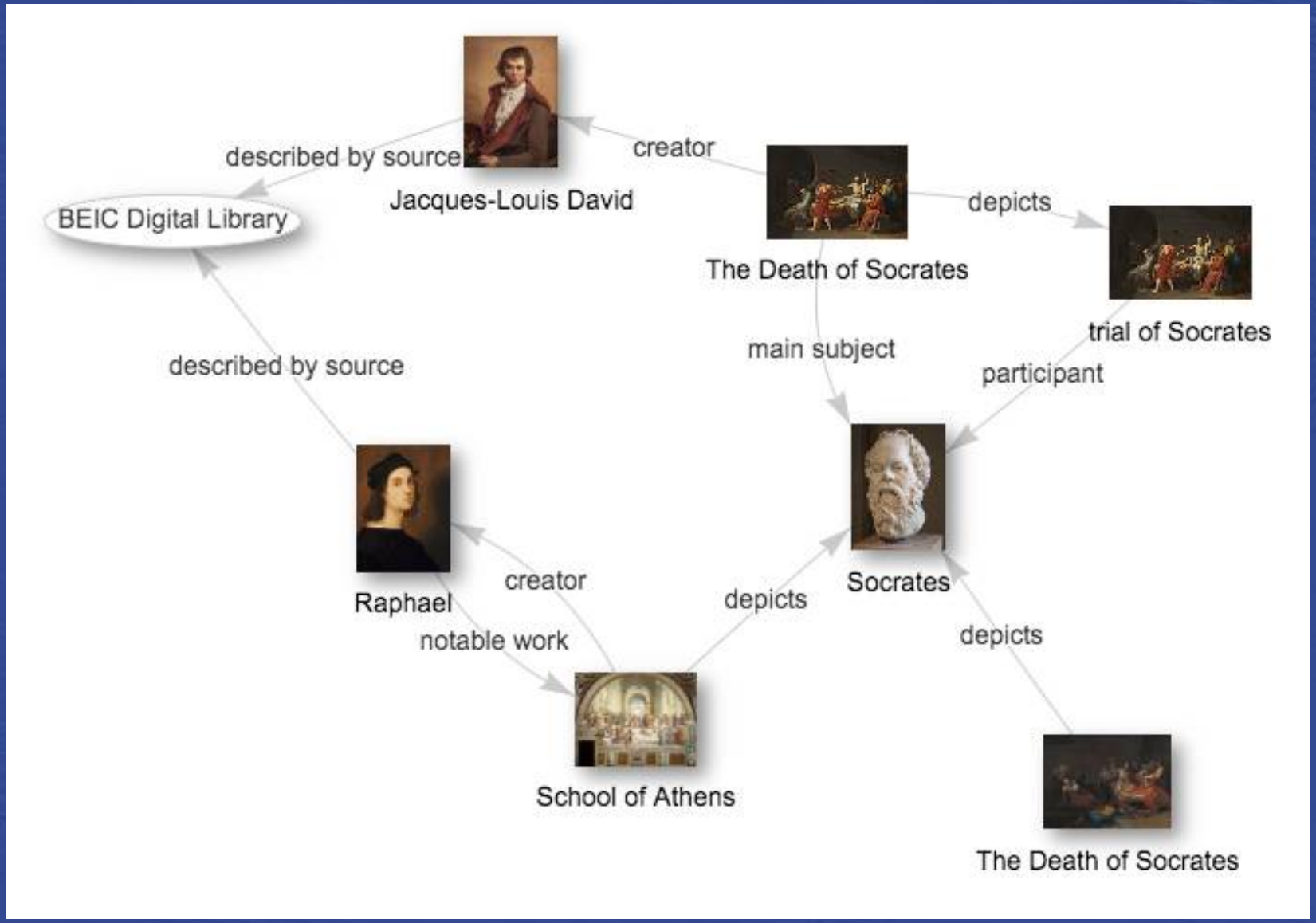




Karlsruher Institut für Technologie (29. Novembre 2017) – Antrittsvorlesung von Prof. Dr. Harald Sack

Combining Semantics and Deep Learning for Intelligent Information Services

Wikidata : un graphe d'information (*knowledge graph*) qui représente et met en relation les objets du monde



Tim Berners-Lee, the inventor of the Web and Linked Data initiator, suggested a 5-star deployment scheme for Open Data.

https://5stardata.info/en/

★ make your stuff available **on the Web** (whatever format) under an open licence

★★ make it available as **structured data** (e.g., Excel instead of image scan of a table)

★★★ make it available in a non-proprietary **open format** (e.g., CSV instead of Excel)

★★★★ use **URIs to denote things**, so that people can point at your stuff

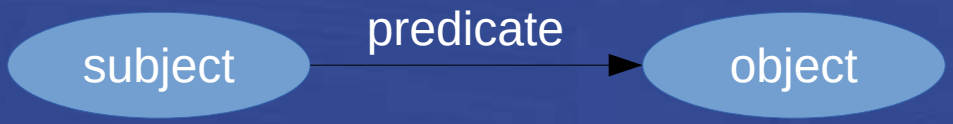
★★★★★ **link your data** to other data to provide context

Quoted from : https://5stardata.info/en/

The semantic web

(https://www.w3.org/TR/rdf11-concepts/)

- « The Resource Description Framework (RDF) is a framework for **representing information in the Web**. »
- « A graph-based data model »



RDF
triple

Gottfried Wilhelm Leibniz

149 languages

Article Talk | Read Edit View history Tools

From Wikipedia, the free encyclopedia

"Leibniz" redirects here. For other uses, see Leibniz (disambiguation).

Gottfried Wilhelm Leibniz[a] (1 July 1646 [O.S. 21 June] – 14 November 1716) was a German polymath active as a mathematician, philosopher, scientist and diplomat who invented calculus in addition to many other branches of mathematics and statistics. Leibniz has been called the "last universal genius" due to his knowledge and skills in different fields and because such people became less common during the Industrial Revolution and spread of specialized labor after his lifetime.[15] He is a prominent figure in both the history of philosophy and the history of mathematics. He wrote works on philosophy, theology, ethics, politics, law, history, philology, games, music, and other studies. Leibniz also made major contributions to physics and technology, and anticipated notions that surfaced much later in probability theory, biology, medicine, geology, psychology, linguistics and computer science. In addition, he contributed to the field of library science by devising a cataloguing system whilst working at the Herzog August Library in Wolfenbüttel, Germany, that would have served as a guide for many of Europe's largest libraries.[16] Leibniz's contributions to a wide range of subjects were scattered in various learned journals, in tens of thousands of letters and in unpublished manuscripts. He wrote in several languages, primarily in Latin, French and German.[17][b]

As a philosopher, he was a leading representative of 17th-century rationalism and idealism. As a mathematician, his major achievement was the development of the main ideas of differential and integral calculus, independently of Isaac Newton's contemporaneous developments.[19] Mathematicians have consistently favored Leibniz's notation as the conventional and more exact expression of calculus.[20][21][22]

In the 20th century, Leibniz's notions of the law of continuity and transcendental law of homogeneity found a consistent mathematical formulation by means of non-standard analysis. He was also a pioneer in the field of mechanical calculators. While working on adding automatic multiplication and division to Pascal's calculator, he was the first to describe a pinwheel calculator in 1685[23] and invented the Leibniz wheel, later used in the arithmometer, the first mass-produced mechanical calculator.

In philosophy and theology, Leibniz is most noted for his optimism, i.e. his conclusion

Gottfried Wilhelm Leibniz

Portrait by Christoph Bernhard Francke, 1695

Born	1 July 1646 Leipzig, Saxony, Holy Roman Empire
Died	14 November 1716 (aged 70) Hanover, Electorate of Hanover, Holy Roman Empire
Education	Alte Nikolaischule [de] Leipzig University (BA, 1662; MA, 1664; LLB, 1665; Dr. phil. hab., 1666) University of Jena (1663)[8] University of Altdorf (Dr. jur., 1666)

Wikipedia : texte, hyperlinks et infobox

L’information comme graphe sémantique

Wikipedia Infobox

Cardinal de l’Église catholique	
Créé cardinal	11 septembre 1606 par le pape Paul V
Titre cardinalice	Cardinal-prêtre de *Ss. Quattri Corontati* Cardinal-prêtre de *S. Lorenzo in Lucina* Cardinal-évêque de *Frascati*

DBPedia.org

http://fr.wikipedia.org/wiki/Giovanni_Garzia_Millini

http://fr.dbpedia.org/page/Giovanni_Garzia_Millini

"1606-09-11"

prop-fr:création

Millini, Giovanni Garzia

prop-fr:création

"par le pape Paul V"

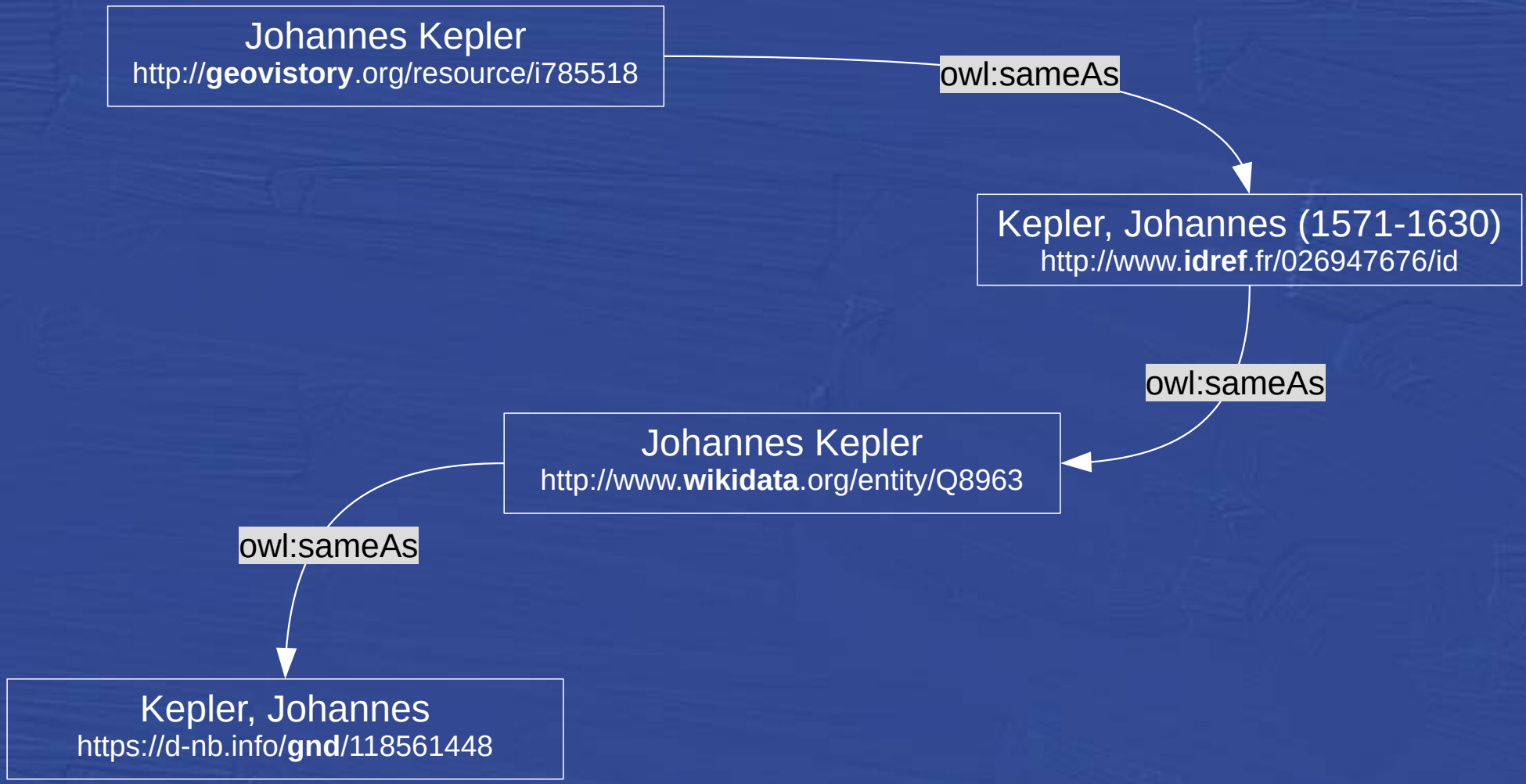
prop-fr:titre

"cardinal"

Sourcing ???

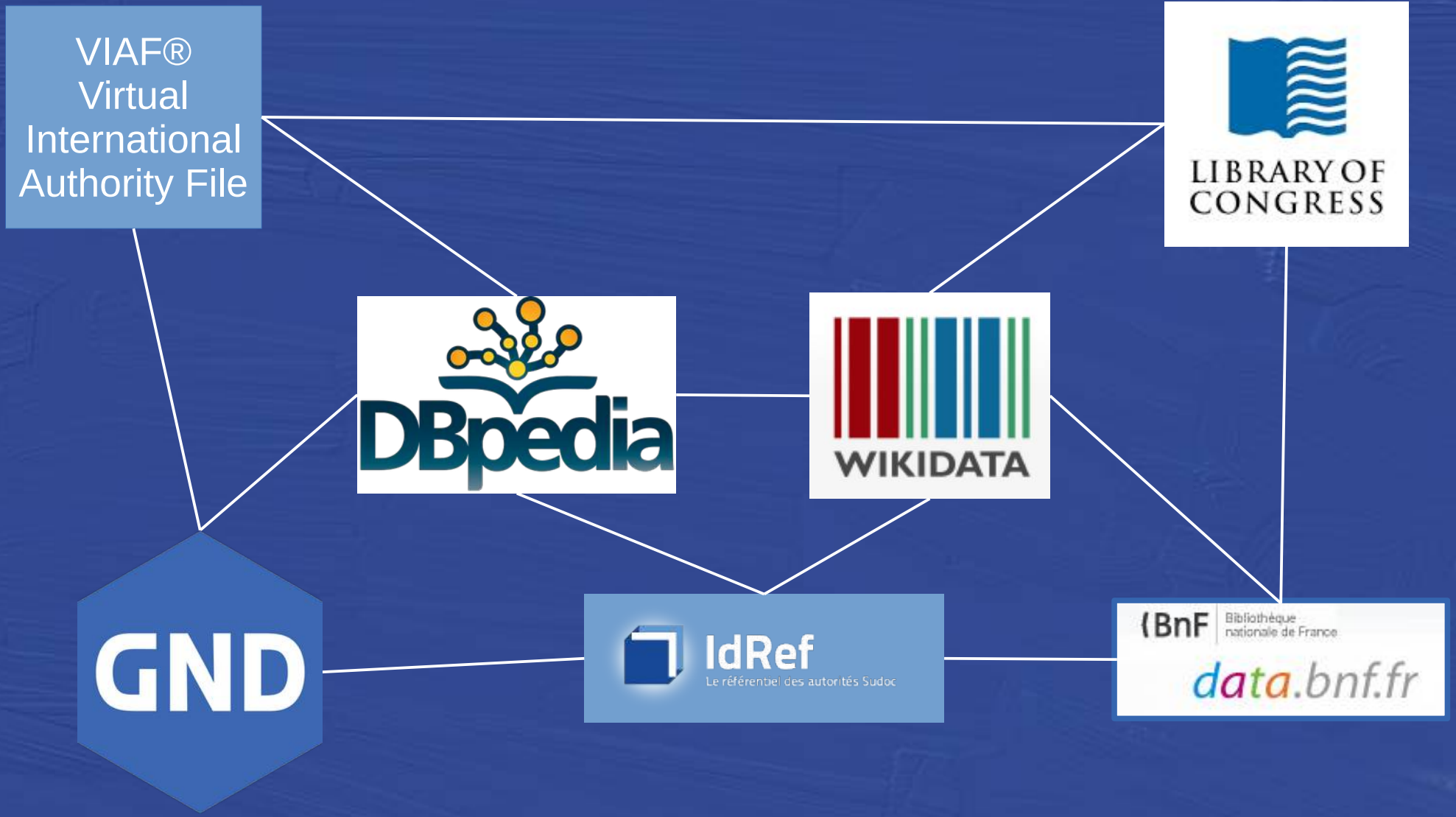
Linked Open Data (LOD) – Données liées ouvertes

« URIs to denote things, so that people can point at your stuff »

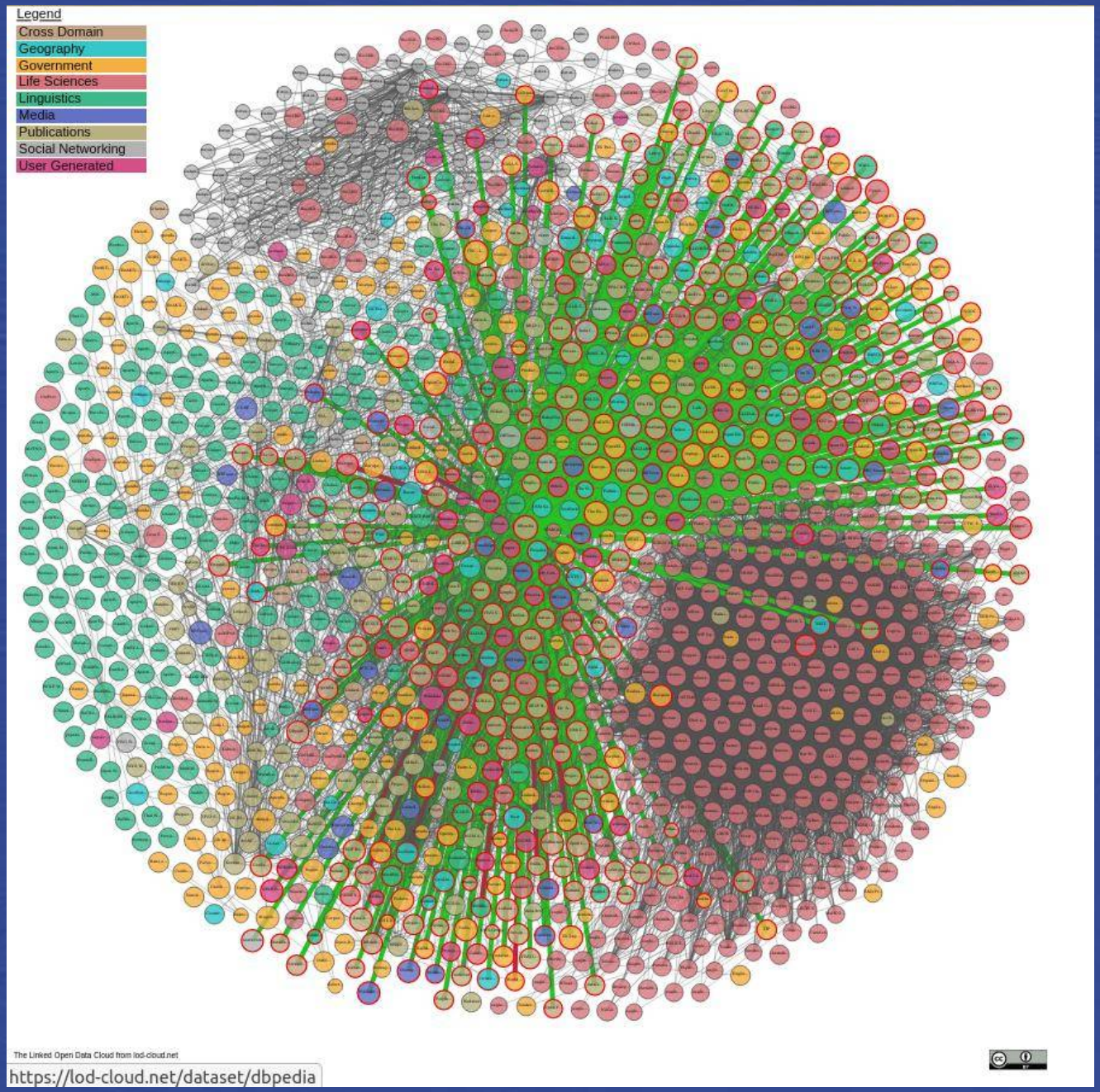


Liens entre systèmes de notices d’autorité

« URIs to denote things, so that people can point at your stuff »



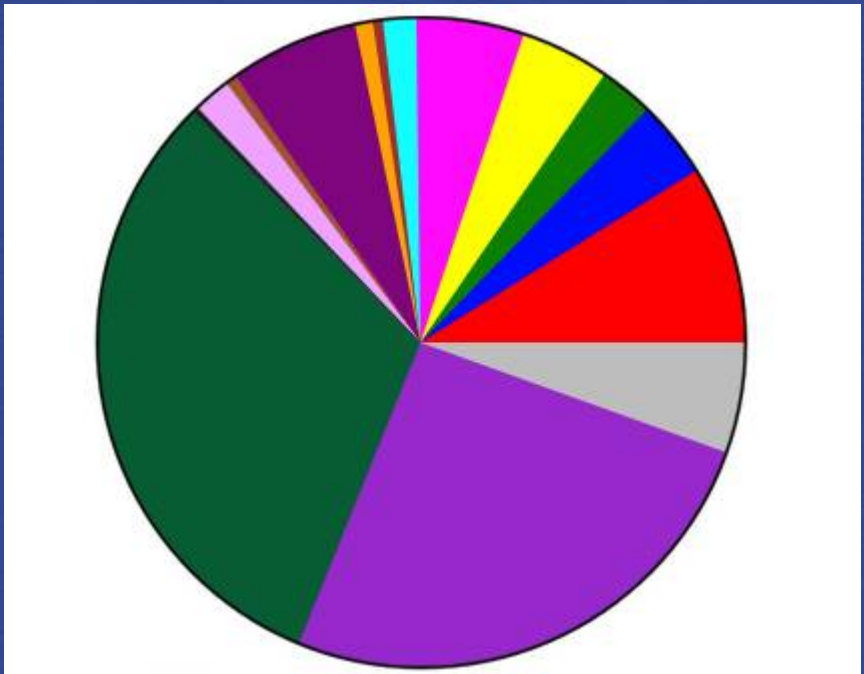
DBPedia


Legend
Cross Domain
Geography
Government
Life Sciences
Linguistics
Media
Publications
Social Networking
User Generated
The Linked Open Data Cloud from lod-cloud.net
https://lod-cloud.net/dataset/dbpedia

Wikidata

14 November 2023 – 107’588’216 items

1.5 billions statements



16 February 2020 : 71,611,020 items

- human: 6,376,879 (8.9%)
- taxon: 2,726,046 (3.8%)
- administrative division: 1,943,285 (2.7%)
- architectural structure: 3,159,472 (4.4%)
- occurrence: 3,898,674 (5.4%)
- chemical compound: 1,188,724 (1.7%)
- film: 294,370 (0.4%)
- thoroughfare: 630,794 (0.9%)
- astronomical object: 4,601,733 (6.4%)
- Wikimedia list article: 404,454 (0.6%)
- Wikimedia disambiguation page: 1,358,230 (1.9%)
- Wikinews article: 195,900 (0.3%)
- scholarly article: 22,574,314 (31.5%)
- other P31/P279: 18,284,676 (25.5%)
- no P31/P279: 3,973,469 (5.5%)

Projet de la Wikimedia Foundation, 1.65 milliards de liens (2025)

wikidata.org

Millini, Giovanni Garzia

https://www.wikidata.org/wiki/Q1079973

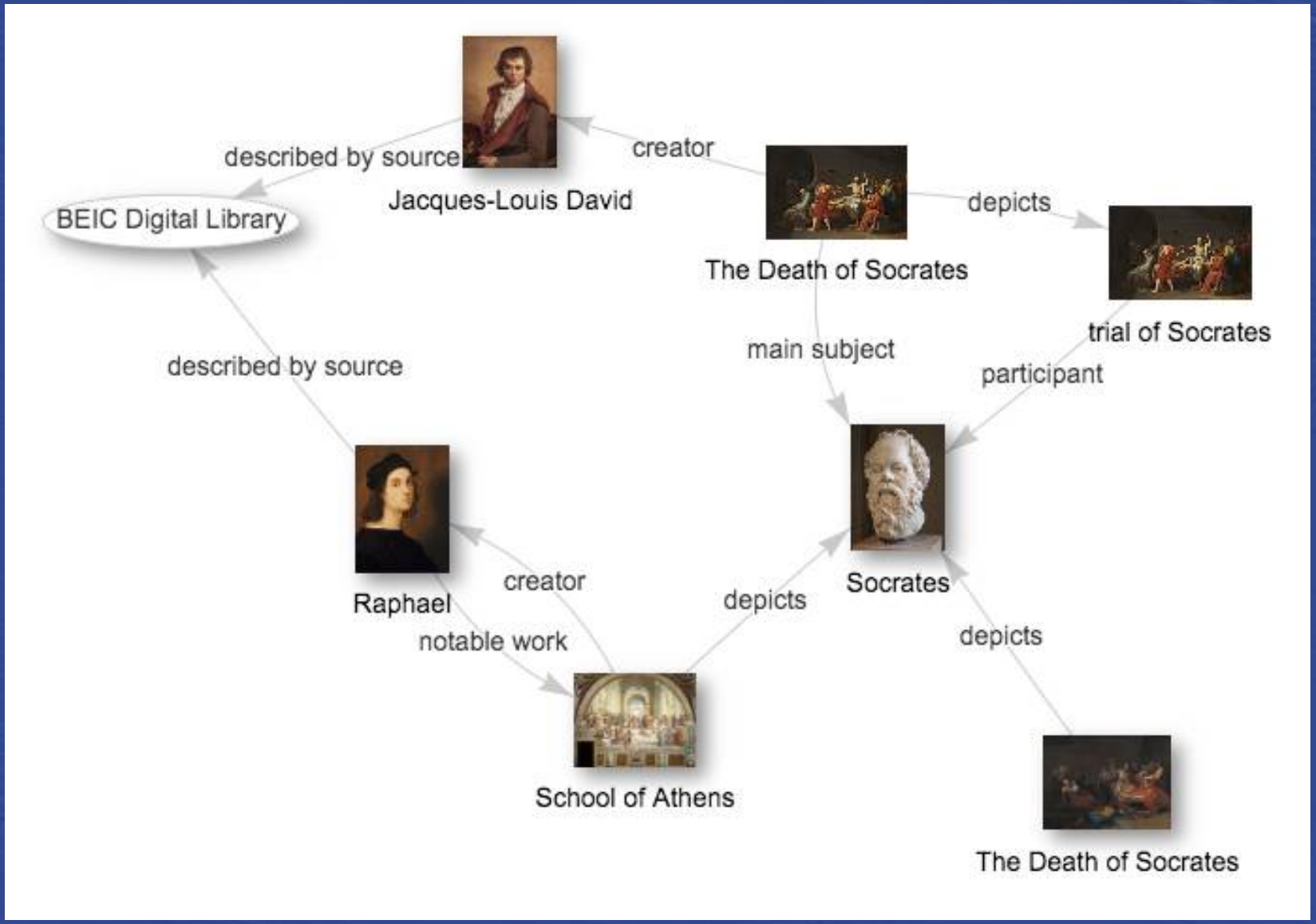
statement

ps:P39 (position held) → wd:Q45722 (cardinal)

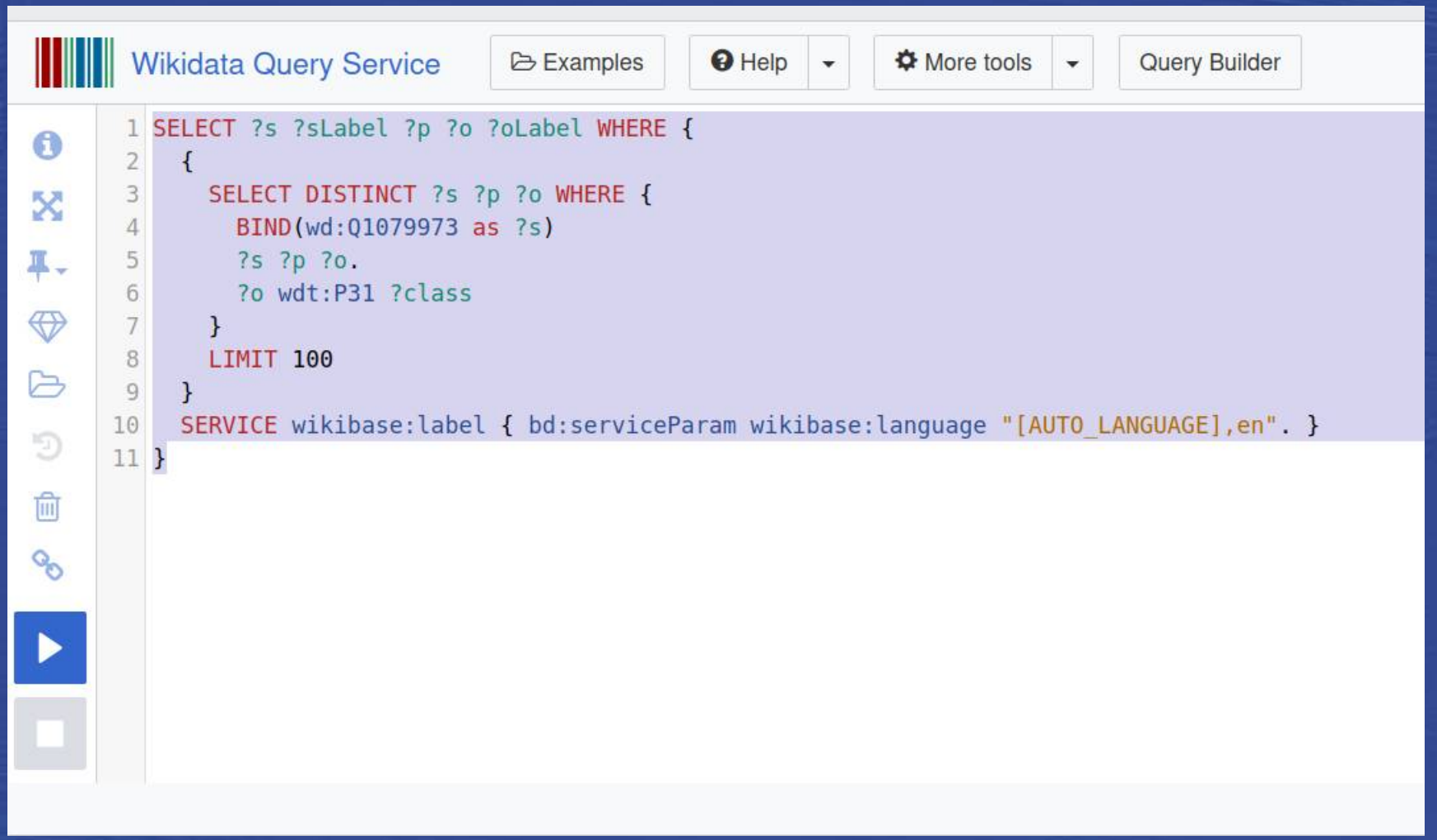
prov:wasDerivedFrom → **http://www.catholic-hierarchy.org/bishop/bmilligg.html**

pq:P580 (start time) → 1606-09-11T00:00:00Z

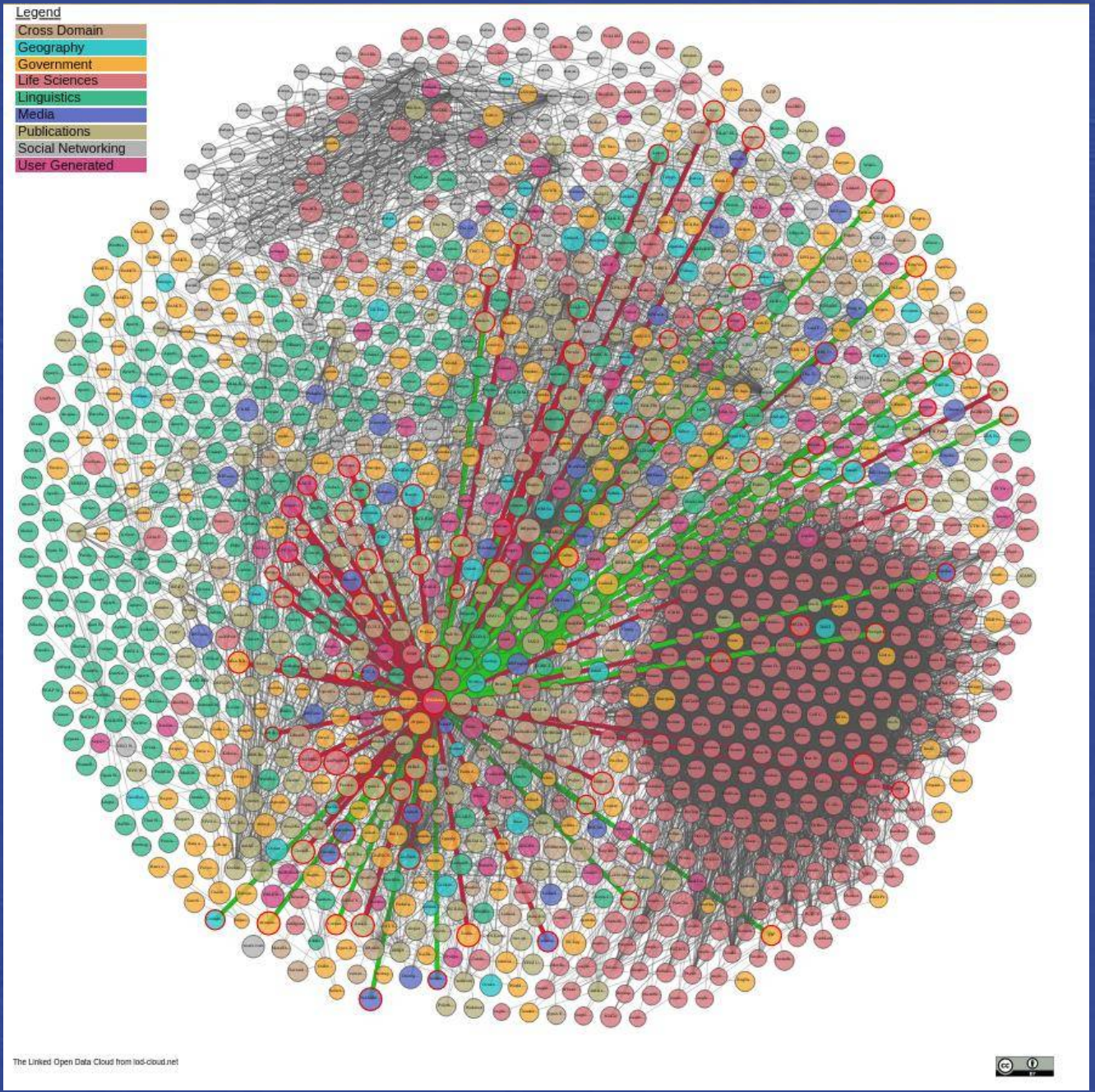
Wikidata : un graphe d'information (*knowledge graph*) qui représente les objets du monde et leurs relations



Interroger le web sémantique, les LOD, avec le langage SPARQL : requête Wikidata

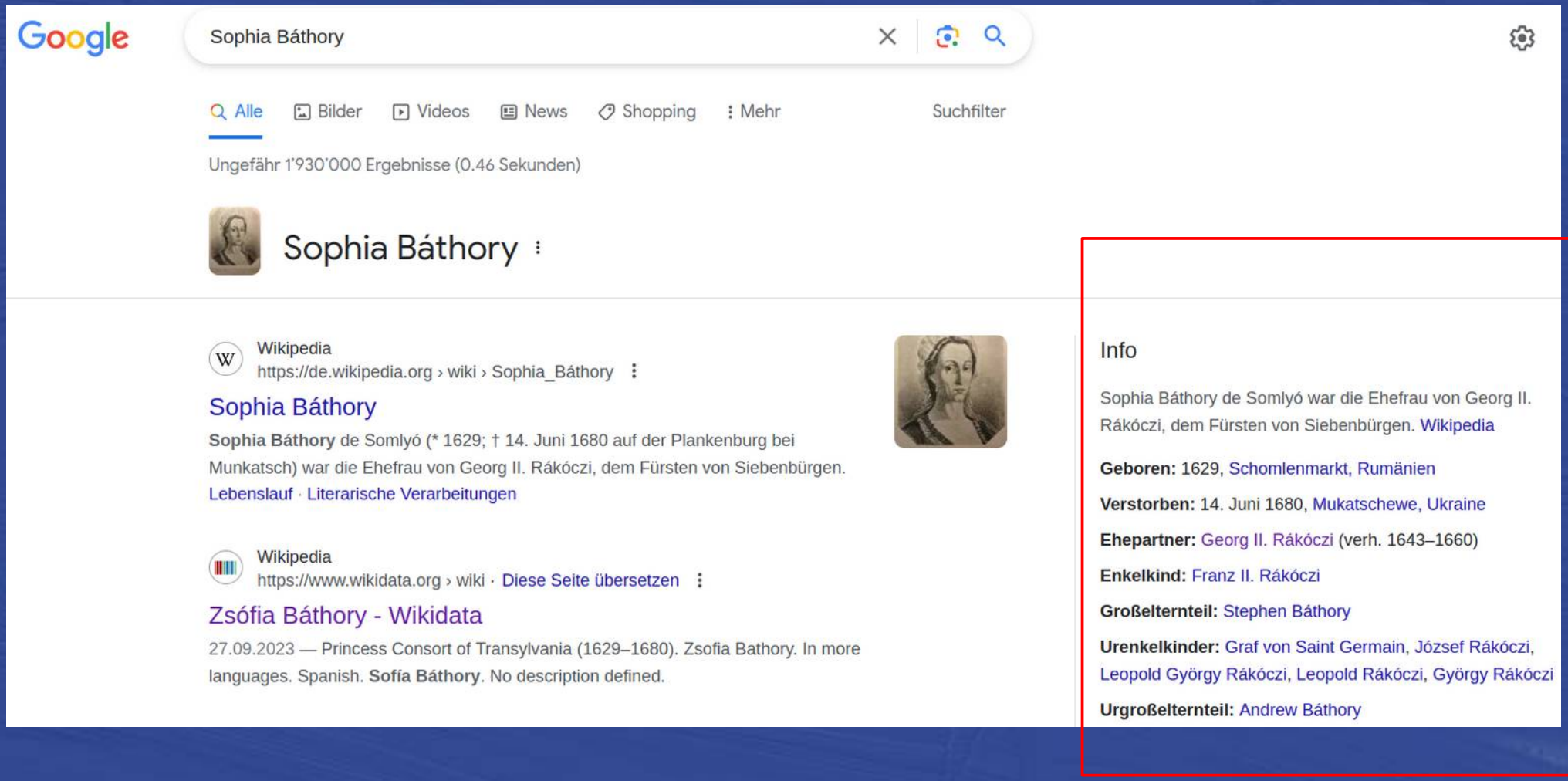


Wikidata


Legend
Cross Domain
Geography
Government
Life Sciences
Linguistics
Media
Publications
Social Networking
User Generated
The Linked Open Data Cloud from lod-cloud.net

Google Knowledge Graph

"By March 2023, it had grown to 800 billion facts on 8 billion entities" (Wikipedia).



Wikidata and Google Knowledge Graph

WIKIDATA

Item | Discussion

Zsófia Báthory (Q250942)

Princess Consort of Transylvania (1629–1680)
Zsofia Bathory

edit

In more languages
Configure

Language	Label	Description	Also known as
English	Zsófia Báthory	Princess Consort of Transylvania (1629–1680)	Zsofia Bathory
German	Zsófia Báthory	Ehefrau von Georg II. Rákóczi, des Fürsten von Siebenbürgen (1629–1680)	
Alemannic	No label defined	No description defined	
French	Zsófia Báthory	(1629–1680)	

All entered languages

Main page
Community portal
Project chat
Create a new Item
Recent changes
Random Item
Query Service
Nearby
Help
Donate

Lexicographical data
Create a new Lexeme
Recent changes
Random Lexeme

Tools
What links here
Related changes
Special pages
Permanent link
Page information
Concept URI
Cite this page
Get shortened URL

Statements

instance of — human — 1 reference

image

Báthory Zsófia 1629.jpg
585 × 779; 155 KB

Google Knowledge Graph ID — /g/121258kx — edit
0 references
+ add reference
+ add value

Hungarian National Namespace person ID (new) — 662639 — edit
0 references
+ add reference
+ add value

WIKIDATA

Property | Discussion

Google Knowledge Graph ID (P2671)

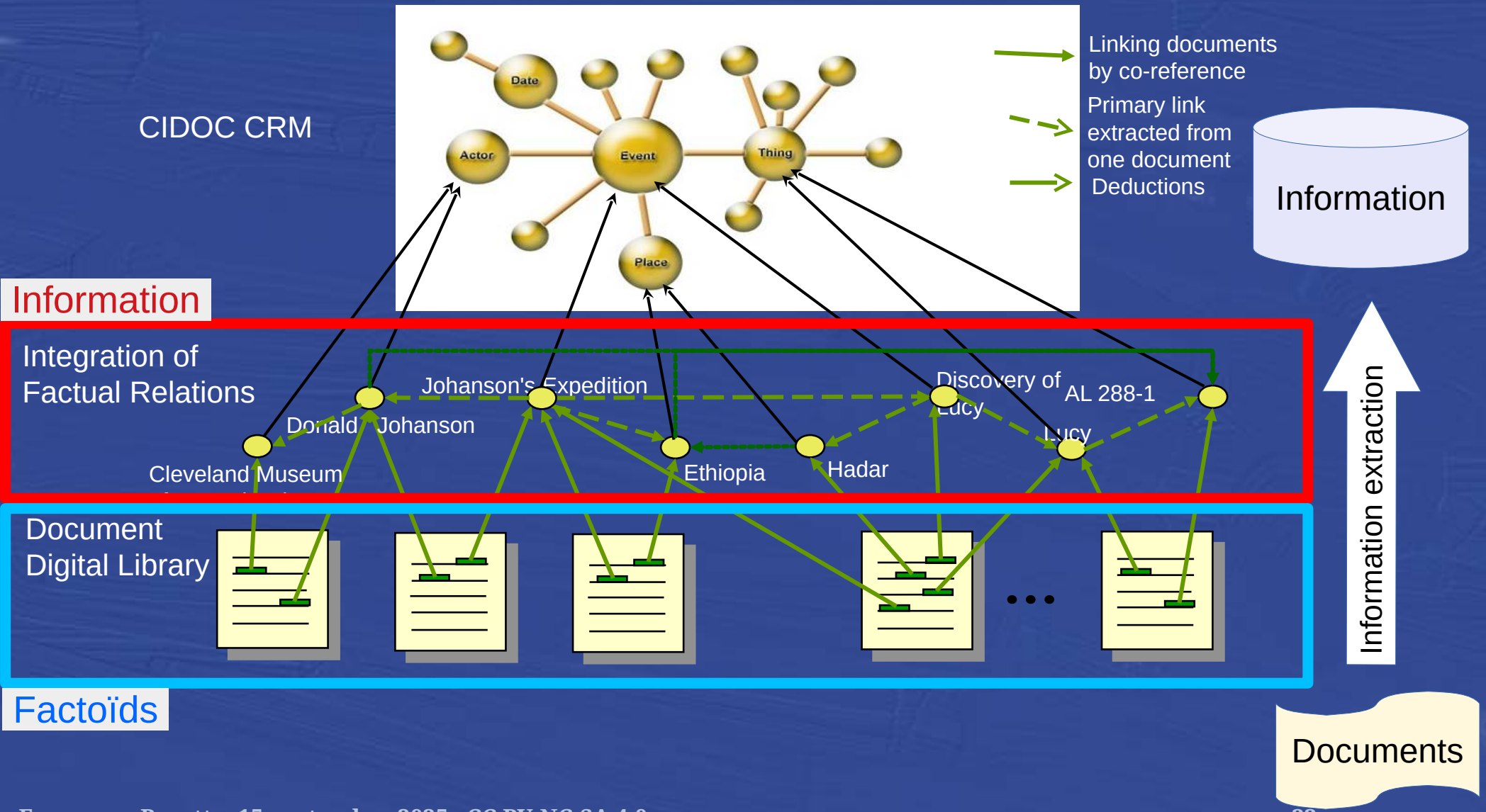
identifier for Google Knowledge Graph API, starting with "/g/". For IDs starting with "/m/", use Freebase ID (P646)

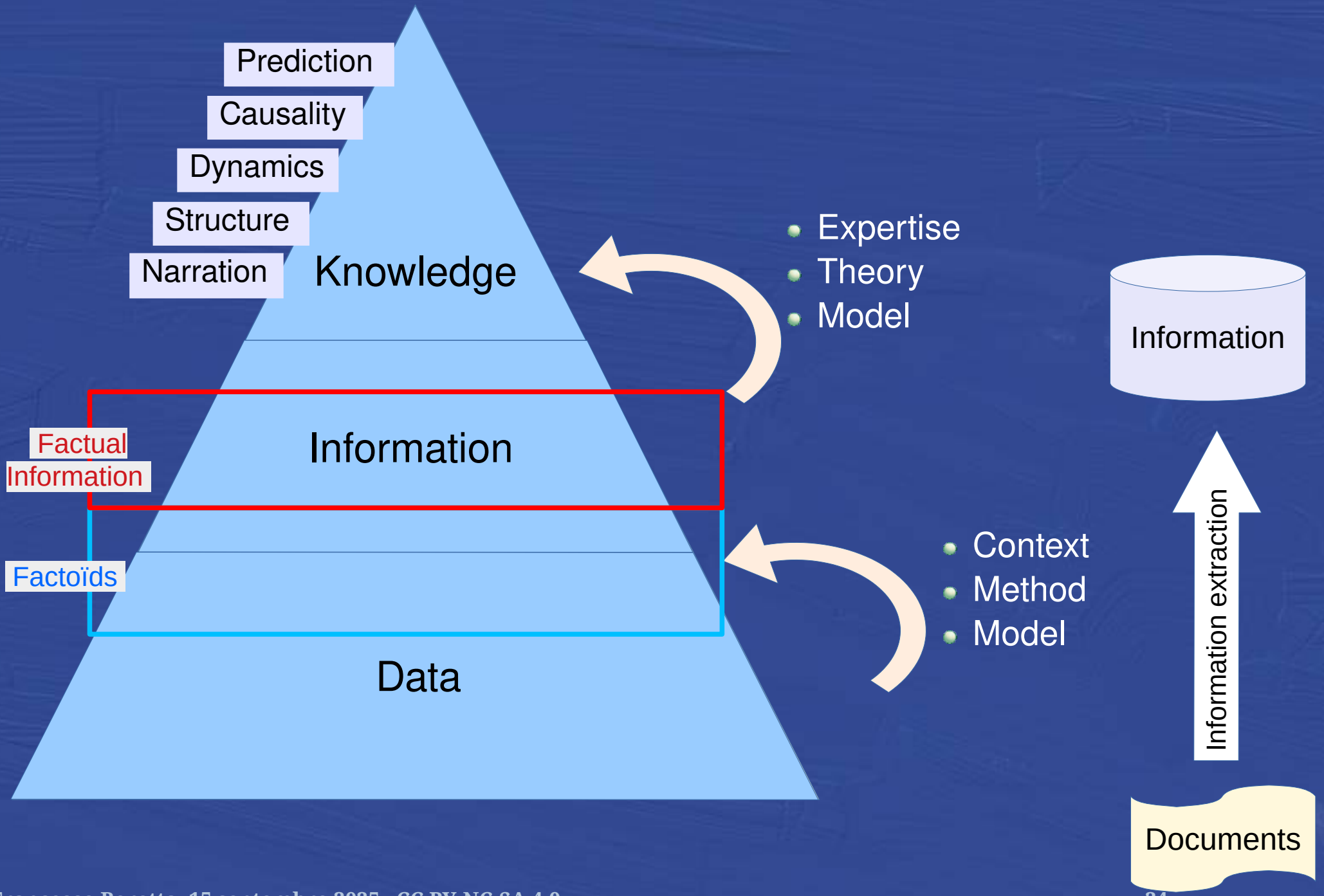
In more languages
Configure

Language	Label	Description	Also known as
English	Google Knowledge Graph ID	identifier for Google Knowledge Graph API, starting with "/g/". For IDs starting with "/m/", use Freebase ID (P646)	

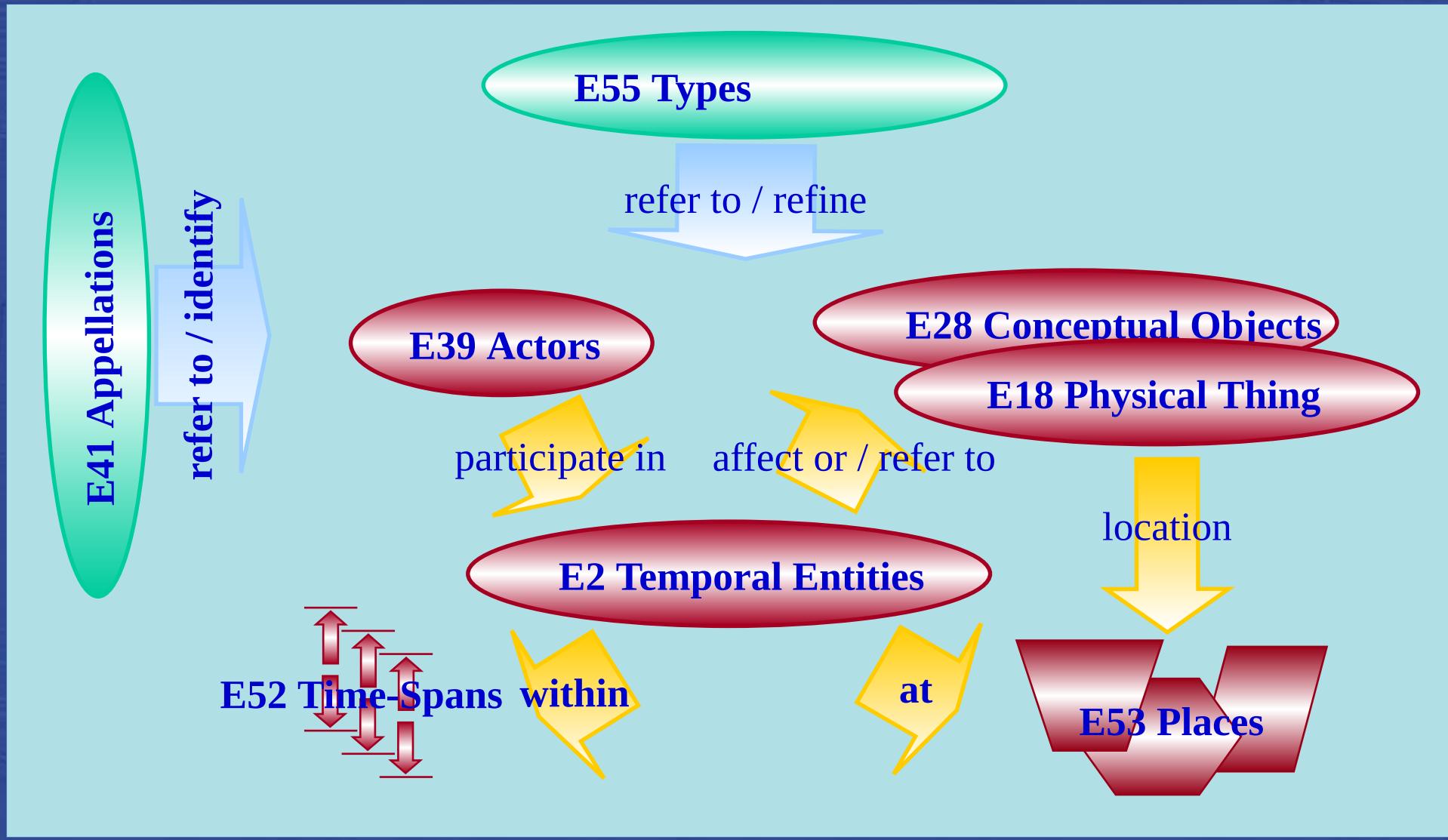
Main page
Community portal
Project chat
Create a new Item
Recent changes
Random Item
Query Service
Nearby

Integration of information extracted from documents using the CIDOC CRM



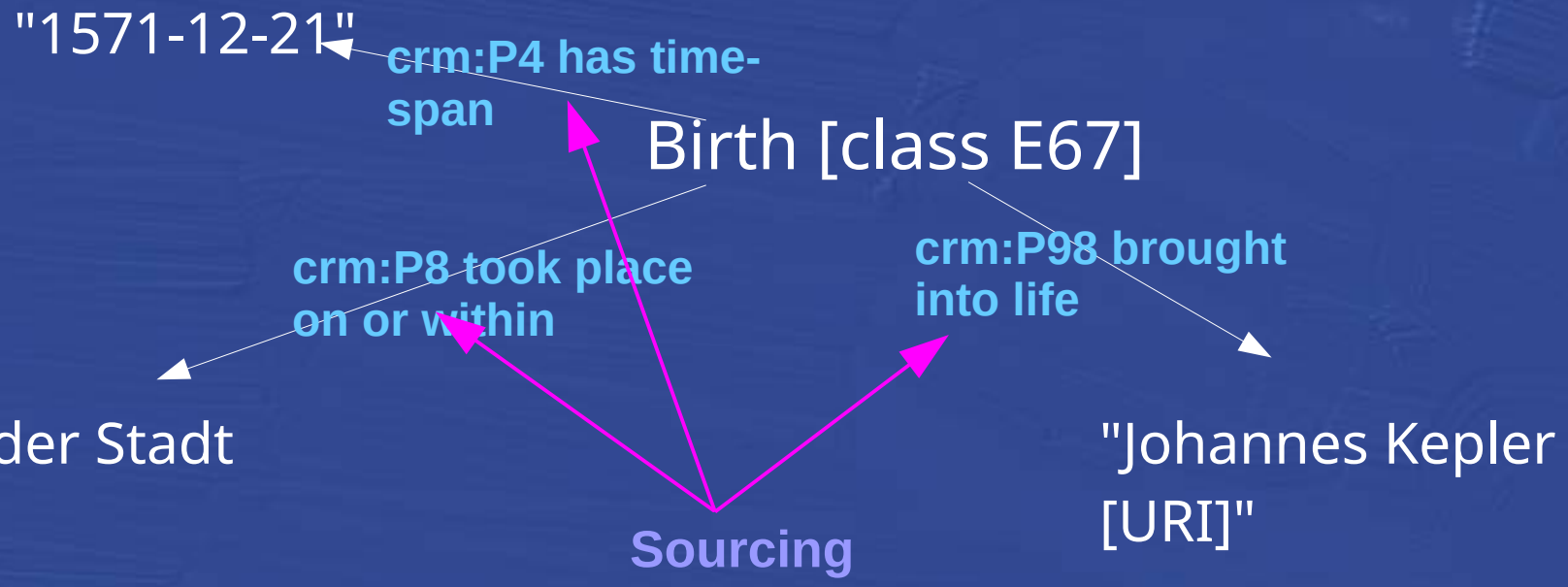

Prediction
Causality
Dynamics
Structure
Narration
Knowledge
Information
Factual Information
Factoïds
Data
Expertise
Theory
Model
Context
Method
Model
Information
Information extraction
Documents

The CIDOC CRM (ISO21127:2006)
A semantic framework that provides *interoperability* between different sources of **cultural heritage information**



Stephen Stead (2008)

Un modèle centré événement, mieux adapté à la rencherche en sciences historiques et humaines



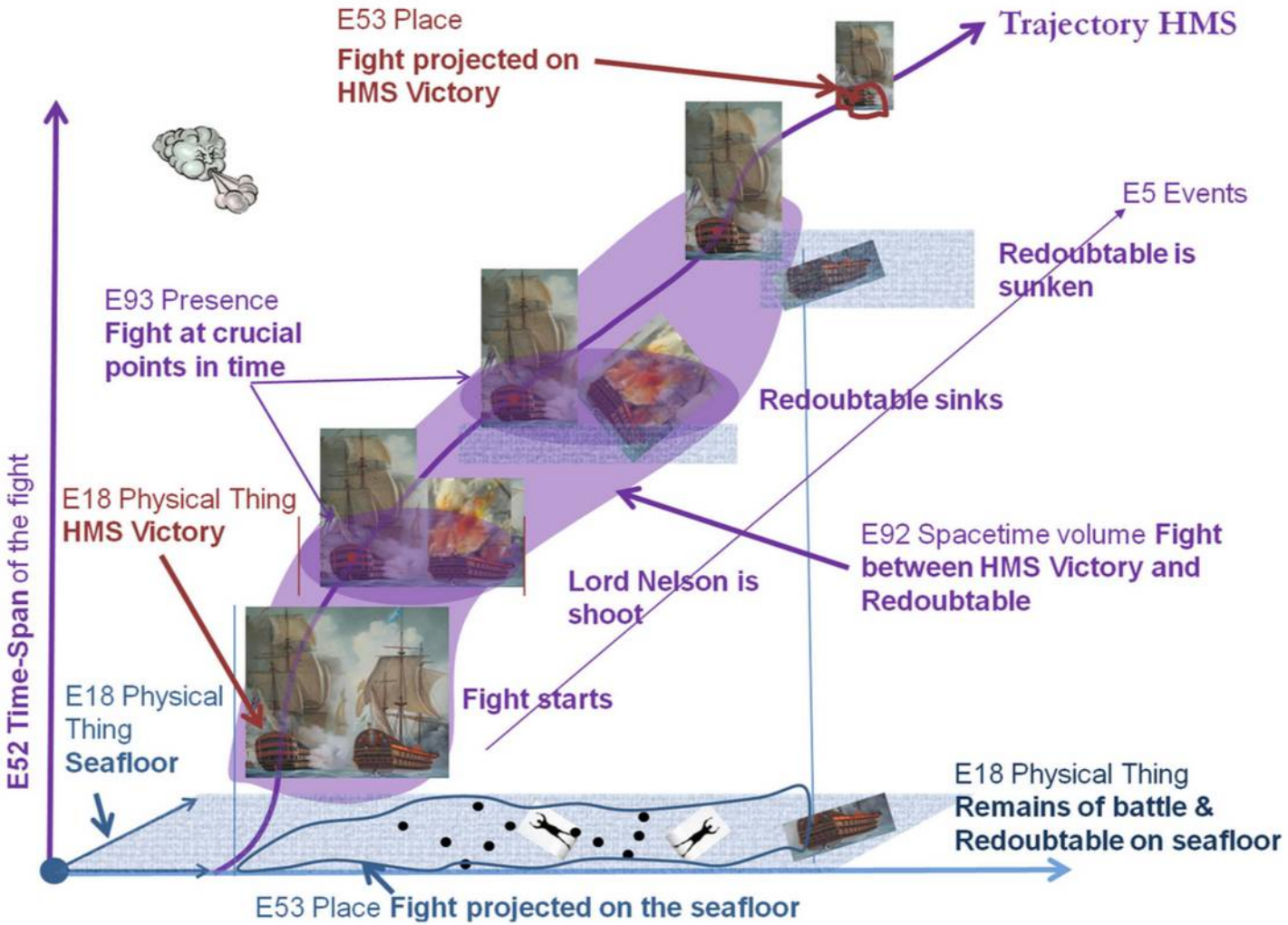


Fig. 2 The fight of the HMS Victory and the Redoubtable in the Battle of Trafalgar illustrating Spacetime volume (E92) and Presence (E93) and their projection to different Places (E53)

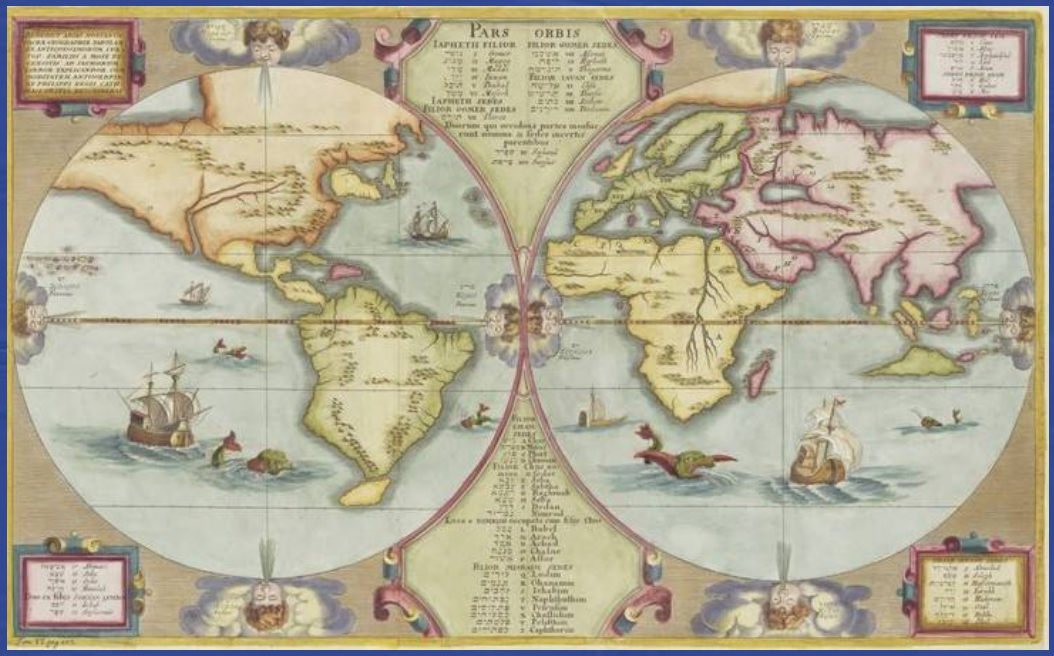
DOI 10.1007/s00799-016-0192-4

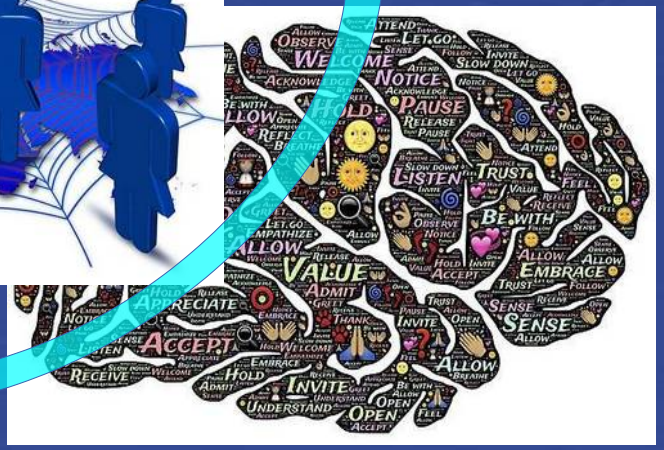
CRMgeo: A spatiotemporal extension of CIDOC-CRM Gerald Hiebel1 · Martin Doerr2 · Øyvind Eide3

En synthèse

Le savoir comme interprétation du monde, sur la base de l'information disponible, dans le contexte de nos représentations

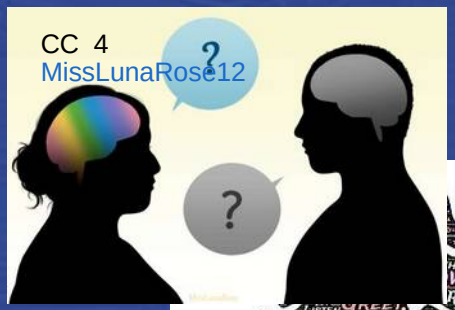
CC 0

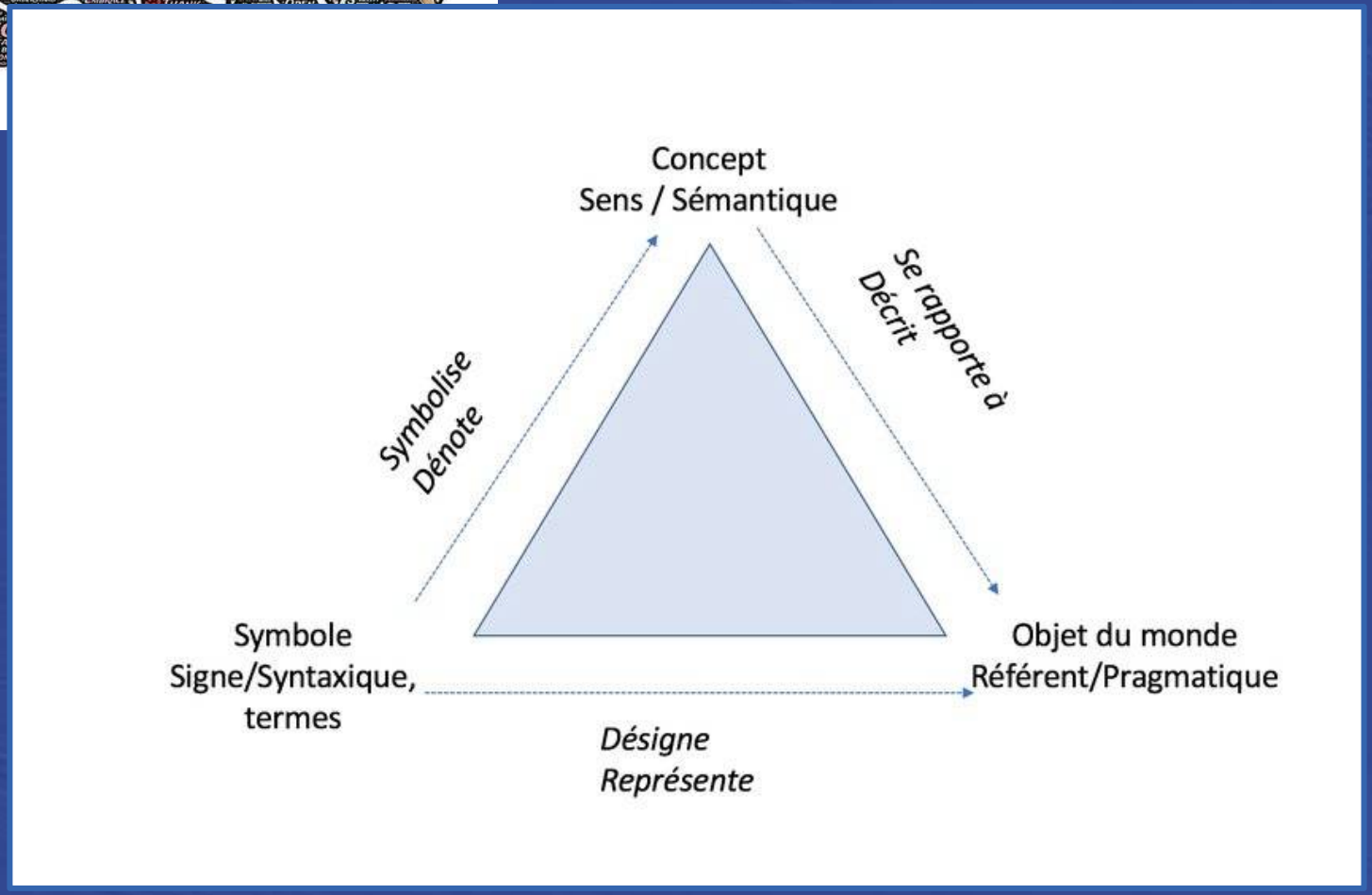




CC 0

La langue comme système de signes et véhicule d'information et de représentations





Les graphes sémantiques comme support d'information utilisable par l'IA pour répondre avec précision à nos questions