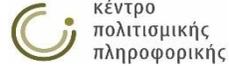
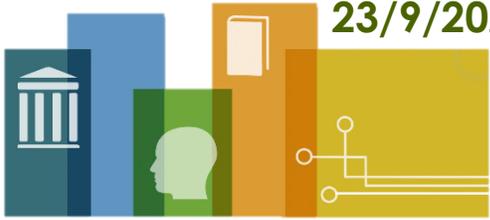


23/9/2020



Ημερίδα

Πληροφοριακά Συστήματα Τεκμηρίωσης Επιστημονικής Έρευνας
στις Ανθρωπιστικές και Κοινωνικές Επιστήμες



Introduction to CIDOC CRM (ISO 21127)

Martin Doerr



Outline

- ❑ History
- ❑ Problem statement – information diversity
- ❑ Example of the problem
- ❑ The solution
- ❑ CIDOC - CRM - overview
- ❑ CIDOC - CRM – presentation of basic concepts
- ❑ Currently uses;
- ❑ Conclusions

History

The history ...

1992: Το ΚΠΠ σε συνεργασία με το Μουσείο Μπενάκη, στα πλαίσια ευρωπαϊκών ερευνητικών προγραμμάτων, ανέπτυξε μια πολιτισμική οντολογία, η οποία παρουσιάστηκε στο συνέδριο CIDOC1994 Washington DC.

1996: Η μέθοδος ανάπτυξης της πολιτισμικής οντολογίας που προέκυψε από την δραστηριότητα αυτή, υιοθετήθηκε από το CIDOC/ICOM με τον τίτλο CIDOC Conceptual Reference Model και σε συντομία CIDOC CRM, ως μελλοντική μέθοδος επίτευξης της σημασιολογικής διαλειτουργικότητας.

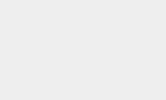
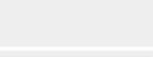
2000: Το CIDOC ιδρύει μια ειδική ομάδα εργασίας το CIDOC-CRM – SIG (εν συντομία crm-sig) με επικεφαλή τον Μάρτιν Ντέρ, ερευνητή, του ΚΠΠ, του ΕΠΣ του ΙΠ-ΙΤΕ για την ανάπτυξη της πολιτισμικής οντολογίας. Η πολιτισμική οντολογία έγινε δεκτή ως αντικείμενο μελέτης (Work Item) της επιτροπής TC46/SC4 του Οργανισμού Διεθνών Προτύπων (International Standards Organisation- ISO.) Έκτοτε η crm-sig συνεργάζεται με τον ISO ως ομάδα εμπειρογνομώνων υπεύθυνη για τα τεχνικά περιεχόμενα του ISO 21127 συνεδριάζοντας 3-4 φορές ετησίως.

2006: η έκδοση 3.4.9 της οντολογίας αναφοράς του CIDOC CRM έγινε διεθνές πρότυπο με κωδικό ISO 21127:2006.

2014: νέα έκδοση του προτύπου δημοσιοποιείται τον Δεκέμβριο του 2014.

Από το 2000 έως σήμερα, το ΚΠΠ του ΕΠΣ, του ΙΠ- ΙΤΕ, δραστηριοποιείται τόσο ως αρμόδιο κέντρο για το CIDOC-CRM ISO 21127 στην ανάπτυξη και ανταλλαγή τεχνογνωσίας με συμβουλευτικό ρόλο προς τους ερευνητές και υλοποιητές, όσο και στην διάδοση, συντήρηση και εξέλιξη του προτύπου, στεγάζει επίσης το διαδικτυακό τόπο του CIDOC-CRM <http://cidoc.ics.forth.gr/> παρέχοντας σημαντική υποδομή για την ανάπτυξη του.

Ειδική ομάδα εργασίας - CRM-SIG

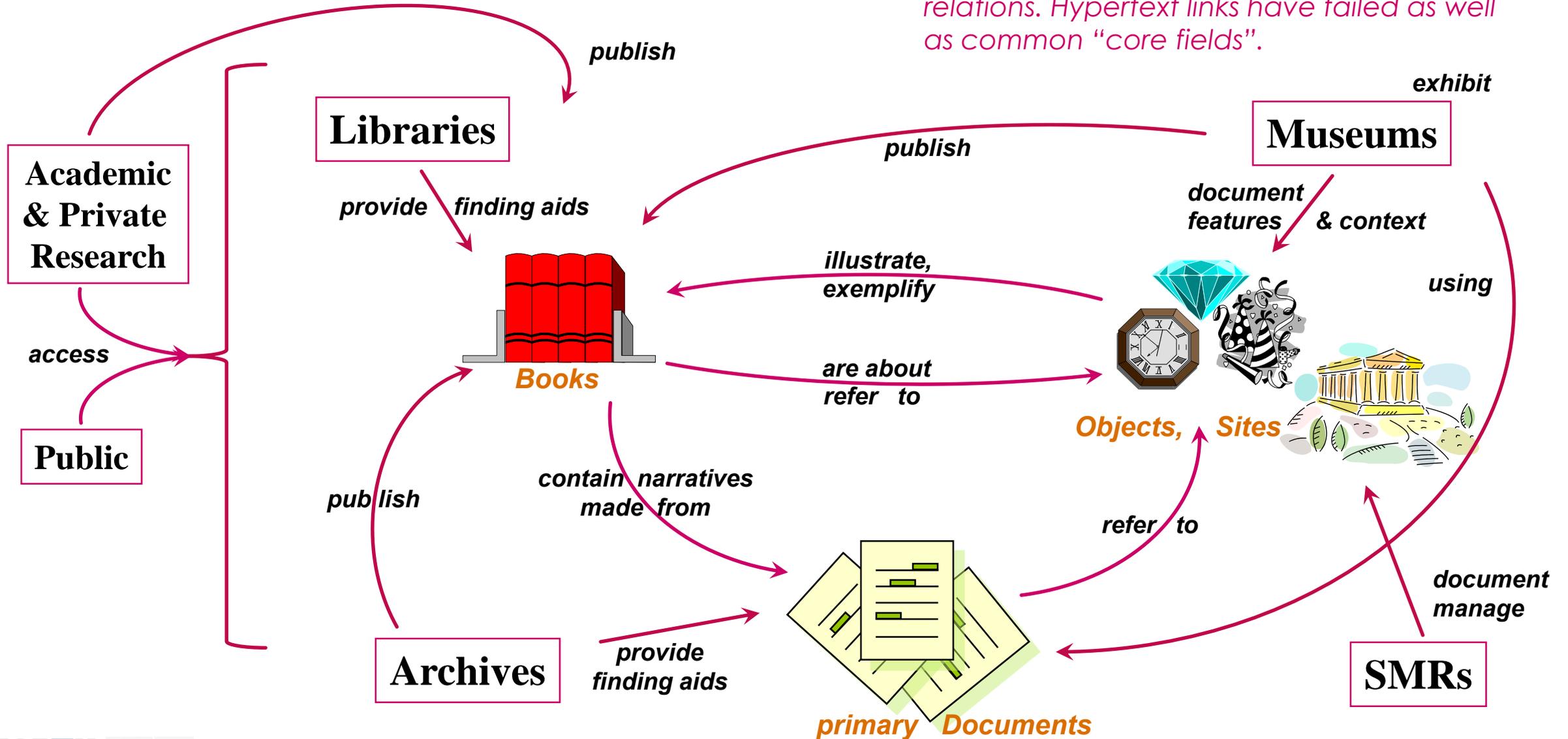
 afnor NORMALISATION	Association Française de Normalisation (AFNOR)	Europe	France	 GERMANISCHES NATIONAL MUSEUM	Germanisches National Museum	Europe	Germany	 KU LEUVEN	KU Leuven, Literary Studies Research Unit	Europe	Germany		The Getty Conservation Institute (GCI)	America	United states of America
 BnF Bibliothèque nationale de France	Bibliothèque nationale de France (BnF)	Europe	France	 Historic England	Historic England, Knowledge Organization Services	Europe	United Kingdom	 LADRA UMR 5190	Laboratoire de Recherche Historique RhonewAlpes-CNRS	Europe	France		The Swiss Art Research Infrastructure	Europe	Switzerland
	Canadian Heritage Information Network	America	Canada		HIVE lab (Heritage Interpretation Visualization and Experience) at University of California Merced, School of Social Sciences	America	United states of America		Liège Université Geomatics Unit	Europe	Belgium		University of Arizona Library, MLIS, Standards group of Library and Information Technology Association (LITA)	America	United states of America
 chi Cultural Heritage Imaging	CHI - Cultural Heritage Imaging	America	United states of America		Hypermedia Research Unit, Glamorgan University	Europe	United Kingdom		Max Plank Institute for History and Science	Europe	Germany		University of Cologne	Europe	Germany
	Department Informatik,FAU Erlangen-Nuernberg	Europe	Germany		ICS-FORTH	Europe	Greece		National Institute of Patrimony (INP)	Europe	Romania		University of Innsbruck Unit for Surveying and Geoinformation	Europe	Austria
	Deutsches Dokumentationszentrum für Kunstgeschichte - Bildarchiv Foto Marburg	Europe	Deutschland		Institute of Information Science and Technologies, A. Faedo	Europe	Italy		OsloMet - Oslo Metropolitan University	Europe	Norway		University of Oslo, Faculty of arts, Unit for digital documentation	Europe	Norway
	Digital Humanities, Historisch, Kulturwissenschaftliche Informationsverarbeitung	Europe	Germany		Institute of archaeology, University of Groningen	Europe	Netherlands		Oxford University e-Research Centre	Europe	United Kingdom		University of the Arts London/Ligatus	Europe	United Kingdom
	English Heritage & University of South Wales	Europe	United Kingdom		Ionian University, The Laboratory of Digital Libraries and Electronic Publishing, Department of Archives Library Science and Museology	Europe	Greece		Paveprime Ltd	Europe	United Kingdom		University of Wisconsin Milwaukee, School of Information Studies, Information Organization Research Group	America	United states of America
	ETH Zurich, Institute for the History and Theory of Architecture	Europe	Switzerland		Kharazmi University	Asia	Iran		Takin.solutions Ltd.	Europe	Bulgaria				
	Fachgruppe Dokumentation DMB, c/o Institut fuer Museumskunde	Europe	Germany						Tartu City Museum	Europe	Estonia				
	German Archaeological Institute (Deutsches Archäologisches Institut, DAI)	Europe	Germany												

<http://cidoc-crm.org/sig-members-list>

Information diversity – how to integrate?

Library, Archive, Museum Information

Data of memory institutions have referential relations. Hypertext links have failed as well as common "core fields".



Example of the problem –
the failure of common core fields

The CIDOC CRM

Historical Archives....

Type:	Text
Title:	Protocol of Proceedings of Crimea Conference
Title.Subtitle:	II. Declaration of Liberated Europe
Date:	February 11, 1945
Creator:	The Premier of the Union of Soviet Socialist Republics The Prime Minister of the United Kingdom The President of the United States of America
Publisher:	State Department
Subject:	Postwar division of Europe and Japan

Metadata

Documents

About...

**“The following declaration has been approved:
The Premier of the Union of Soviet Socialist Republics,
the Prime Minister of the United Kingdom and the President
of the United States of America have consulted with each
other in the common interests of the people of their countries
and those of liberated Europe. They jointly declare their mutual
agreement to concert...
....and to ensure that Germany will never again be able to
disturb the peace of the world..... “**

The CIDOC CRM

Images, non-verbose...

Type:	Image
Title:	Allied Leaders at Yalta
Date:	1945
Publisher:	United Press International (UPI)
Source:	The Bettmann Archive
Copyright:	Corbis
References:	Churchill, Roosevelt, Stalin

Metadata

About...

Photos, Persons



The CIDOC CRM

Places and Objects

TGN Id: 7012124

Names: Yalta (C,V), Jalta (C,V)

Types: inhabited place(C), city (C)

Position: Lat: 44 30 N, Long: 034 10 E

Hierarchy: Europe (continent) ← Ukrayina (nation) ← Krym (autonomous republic)

Note: ...Site of conference between Allied powers in WW II in 1945;

Source: TGN, Thesaurus of Geographic Names

Places, Objects

About...

Title: Yalta, Crimean Peninsula
Publisher: Kurgan-Lisnet
Source: Liaison Agency



The CIDOC CRM

The Integration Problem (1)

□ Problem 1- Identity:

- Actors, Roles, proper names:
 - ❖ The Premier of the Union of Soviet Socialist Republics
Allied leader, Allied power
Joseph Stalin....
- Objects and Documents:
 - ❖ The photo, the agreement text
- Places
 - ❖ Jalta, Yalta
 - ❖ Krym, Crimea
- **Events**
 - ❖ Crimea Conference, “Allied Leaders at Yalta”, “... conference between Allied powers”, “Postwar division”
- **Solution:**
 - “Instance Matching”: semiautomatic methods, but also a basic research process itself

The CIDOC CRM

The Integration Problem (2)

□ Problem 2- hidden entities (typically “**title**”):

➤ Actors

❖ Allied leader, Allied power

➤ Places

❖ Yalta, Crimea

➤ Events

❖ Crimea Conference, “Allied Leaders at Yalta”, “... conference between Allied powers” “Postwar division”

□ Solution:

➤ Change metadata structures: but what are the relevant elements? Hypertext links have failed as well as common “core fields”.

The solution

- away from data fields....

Formal Ontology (“Knowledge Representation”)

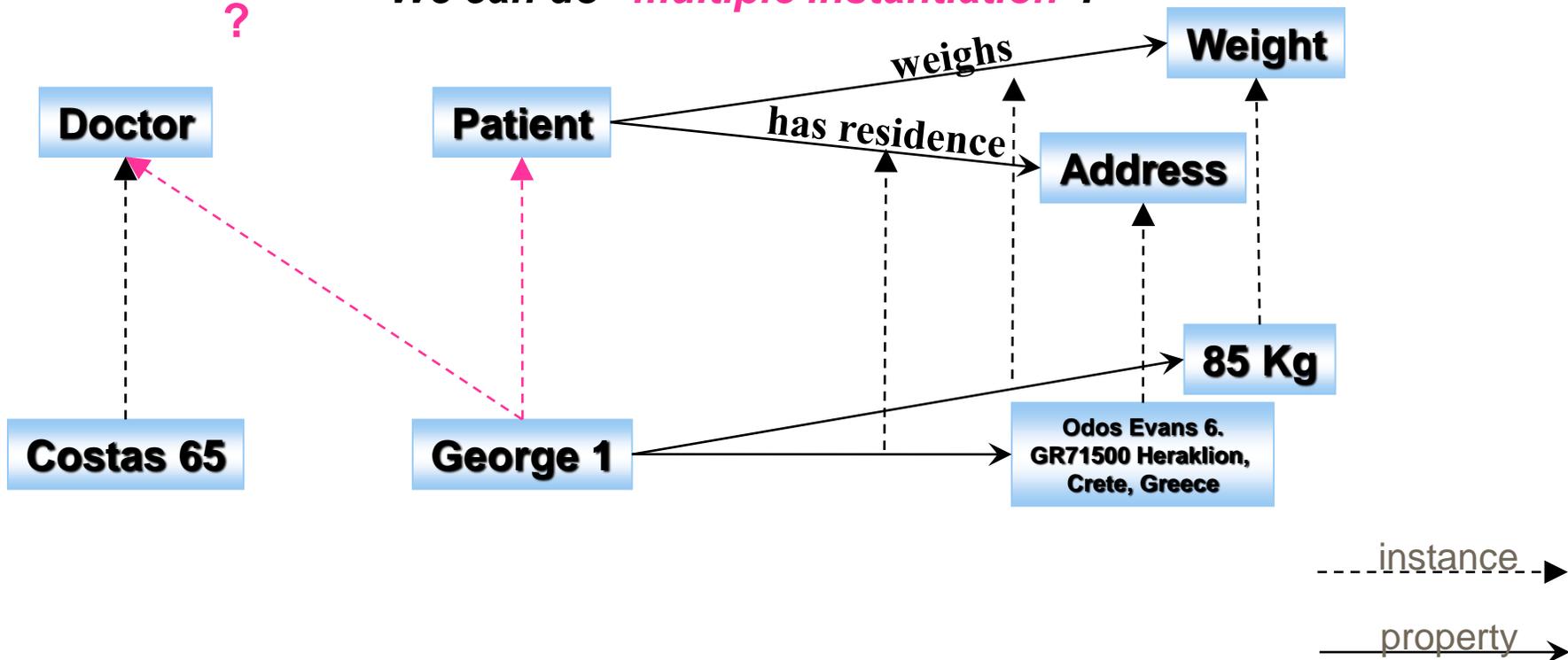
- ❑ The CIDOC CRM is formulated as a “formal ontology”, a form of knowledge representation.
- ❑ A formal ontology is a specification of kinds of things and their relations in terms of **logic**, **approximating reality**. It is formalized knowledge.
- ❑ By formal ontologies in a machine-readable form we can define **data structures**. They serve for the electronic description of facts, **better** than spreadsheets or Relational databases (such as Access)
- ❑ Formal ontologies can be **understood by people** and processed **by machines** to enable data exchange, data integration, query mediation etc.
- ❑ Formal ontologies are **extensible**. They can describe facts at **different levels of genericity**. Therefore they are **superior** for semantic interoperability and **integration**.

Knowledge Representation

Classes and Instances

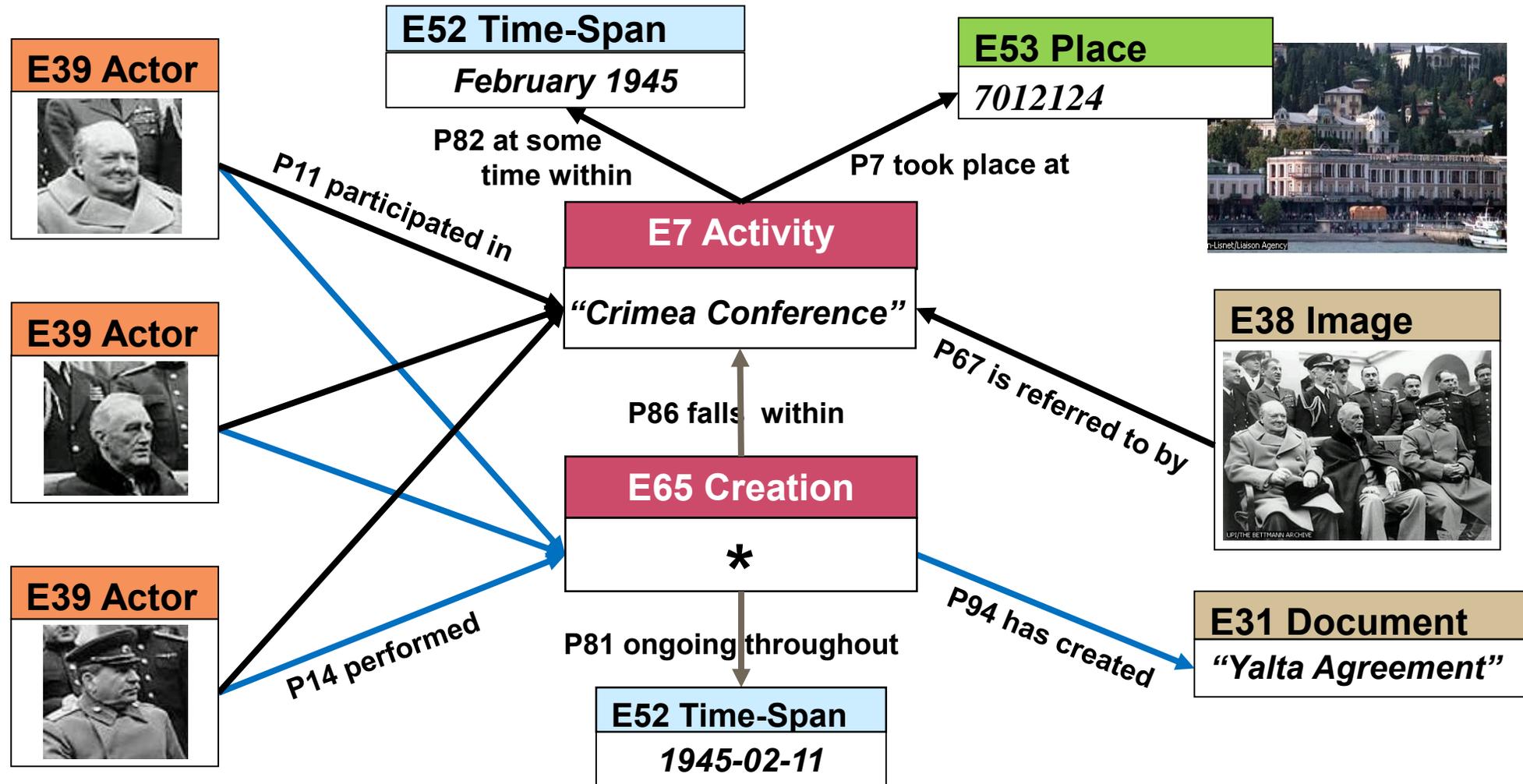
In KR, instances are *independent units of models*,
not a restricted to the records of one table.
Identity is separated from description.

We can do “*multiple instantiation*”.



The CIDOC CRM

Explicit Events, Identity, Directed Relationships (a KR Model)

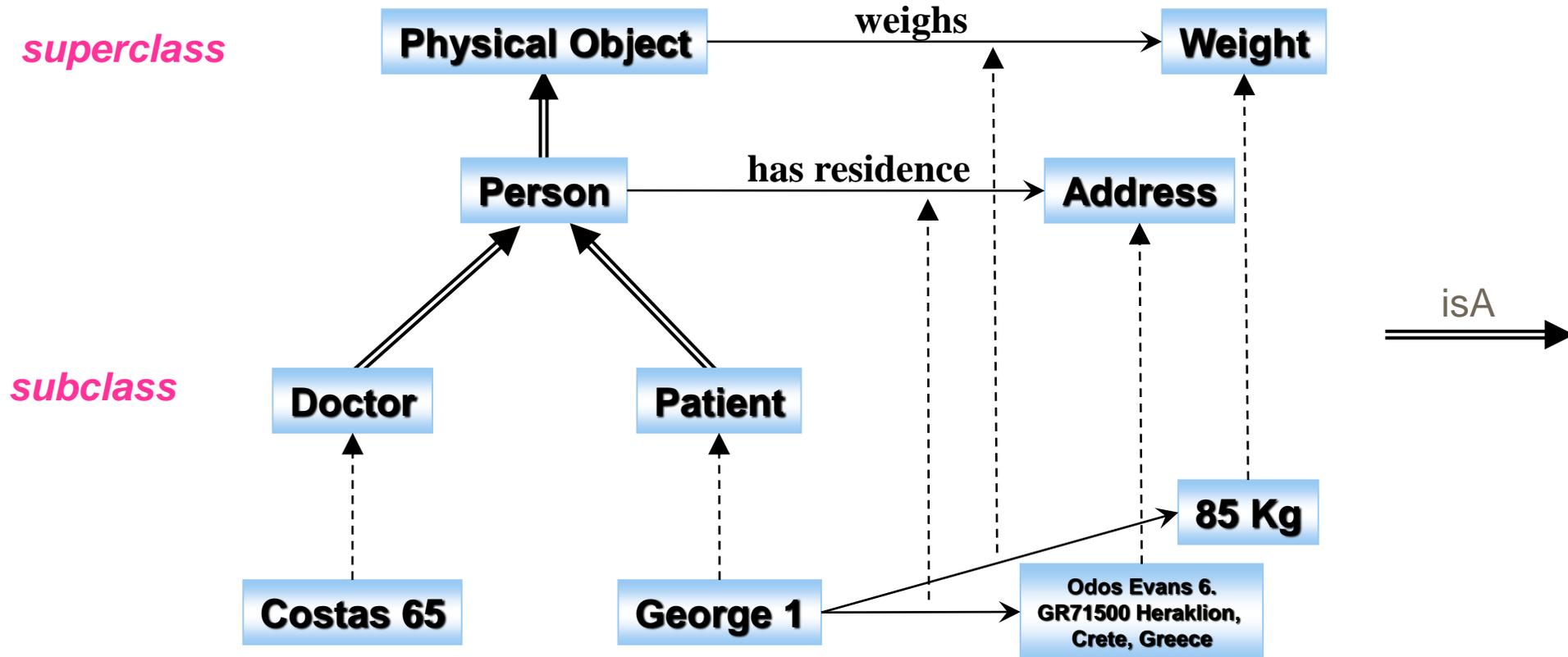


Knowledge Representation

Generalization and Inheritance

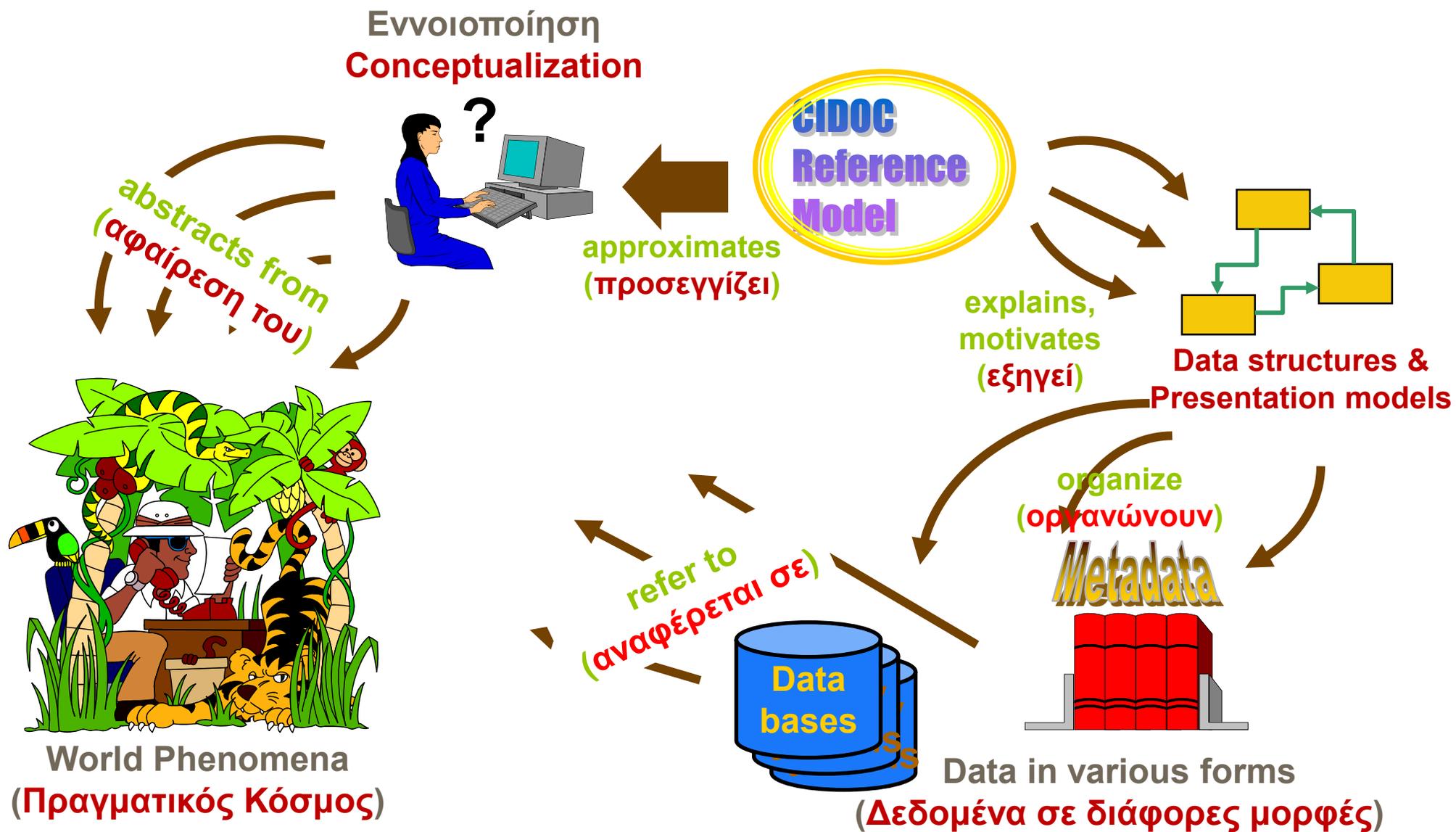
An instance of a class is an *instance of all its superclasses*.

A subclass inherits the *properties of all superclasses*. (properties “move up”)



➤ What have doctors and patients in *common*?

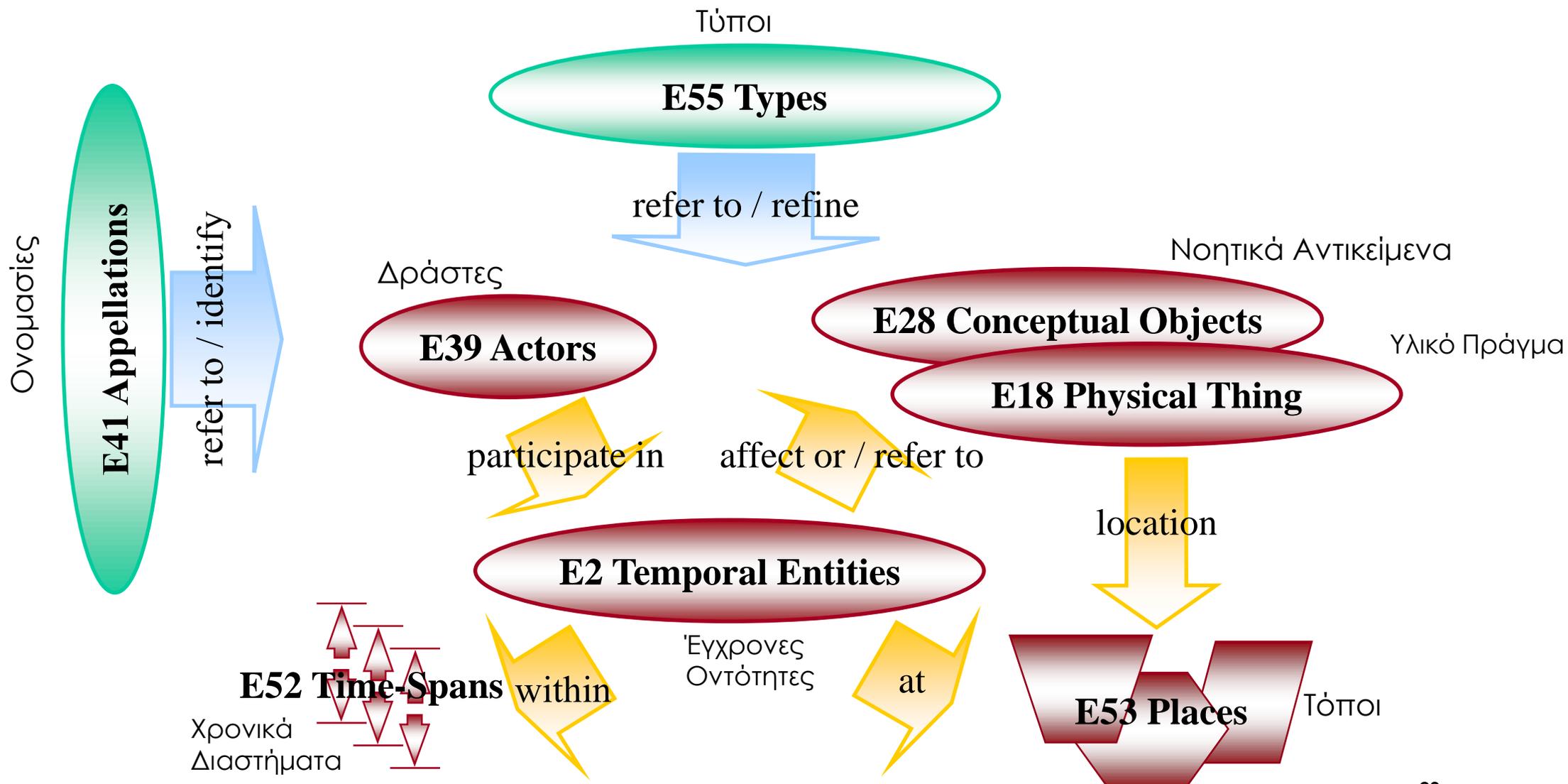
Ο διανοητικός ρόλος της οντολογίας του CIDOC CRM



CIDOC-CRM: The basic Idea

ISO 21127 (CIDOC CRM): The basic idea

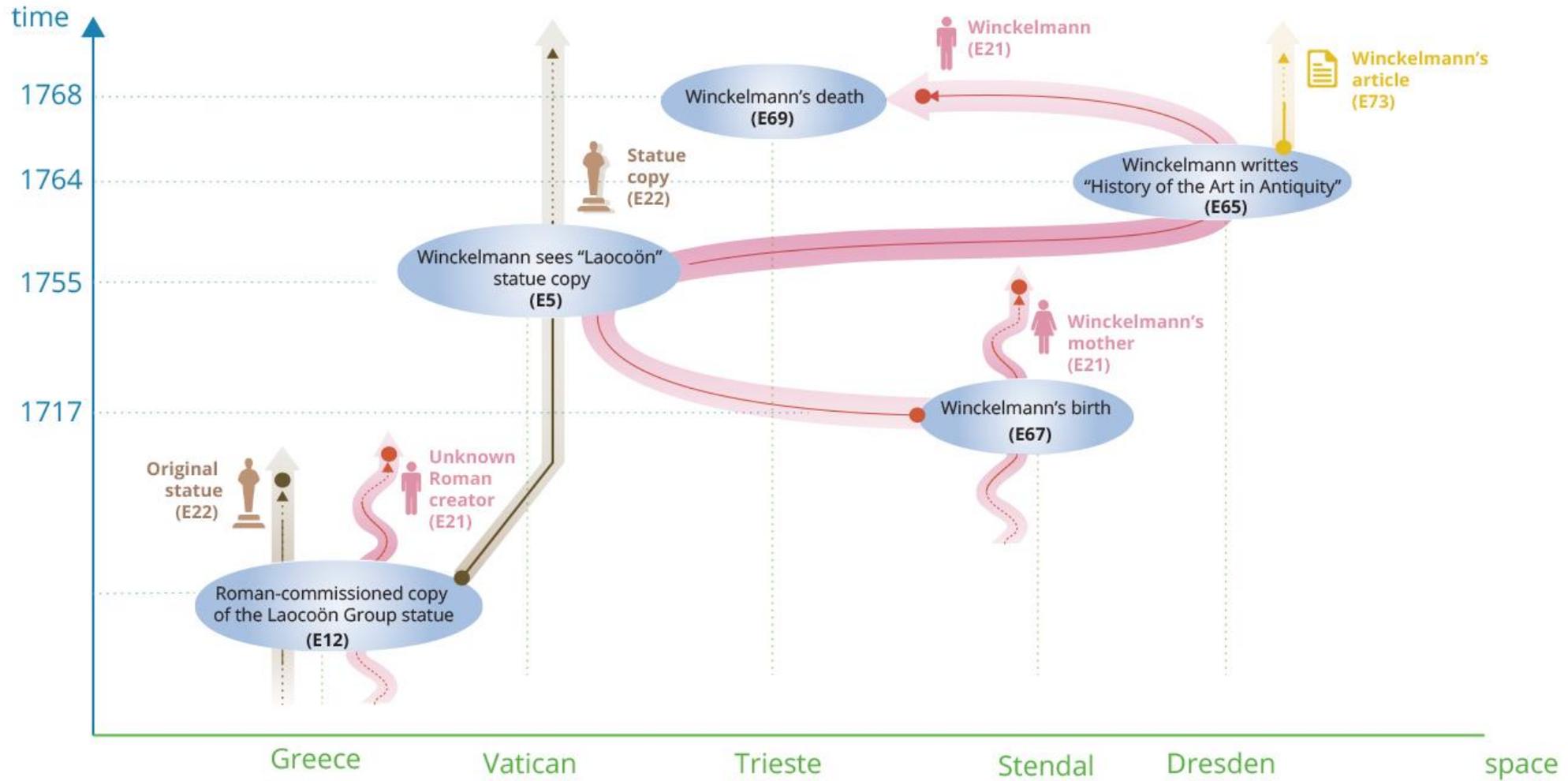
- ❑ Representing (**micro**) **history** a series of **discrete events** we can objectively agree on, **approximating** a part of reality.
- ❑ Events consist of **meetings of people, ideas, objects** which, interacting with each other in **limited areas** of space, time and periods, bring about **noteworthy changes**.
- ❑ An event can **influence people shaping** other events.
- ❑ All other historical considerations benefit from and become **machine searchable** via reference to a **backbone of events** (rather than objects).



The CIDOC CRM - The types of relationships

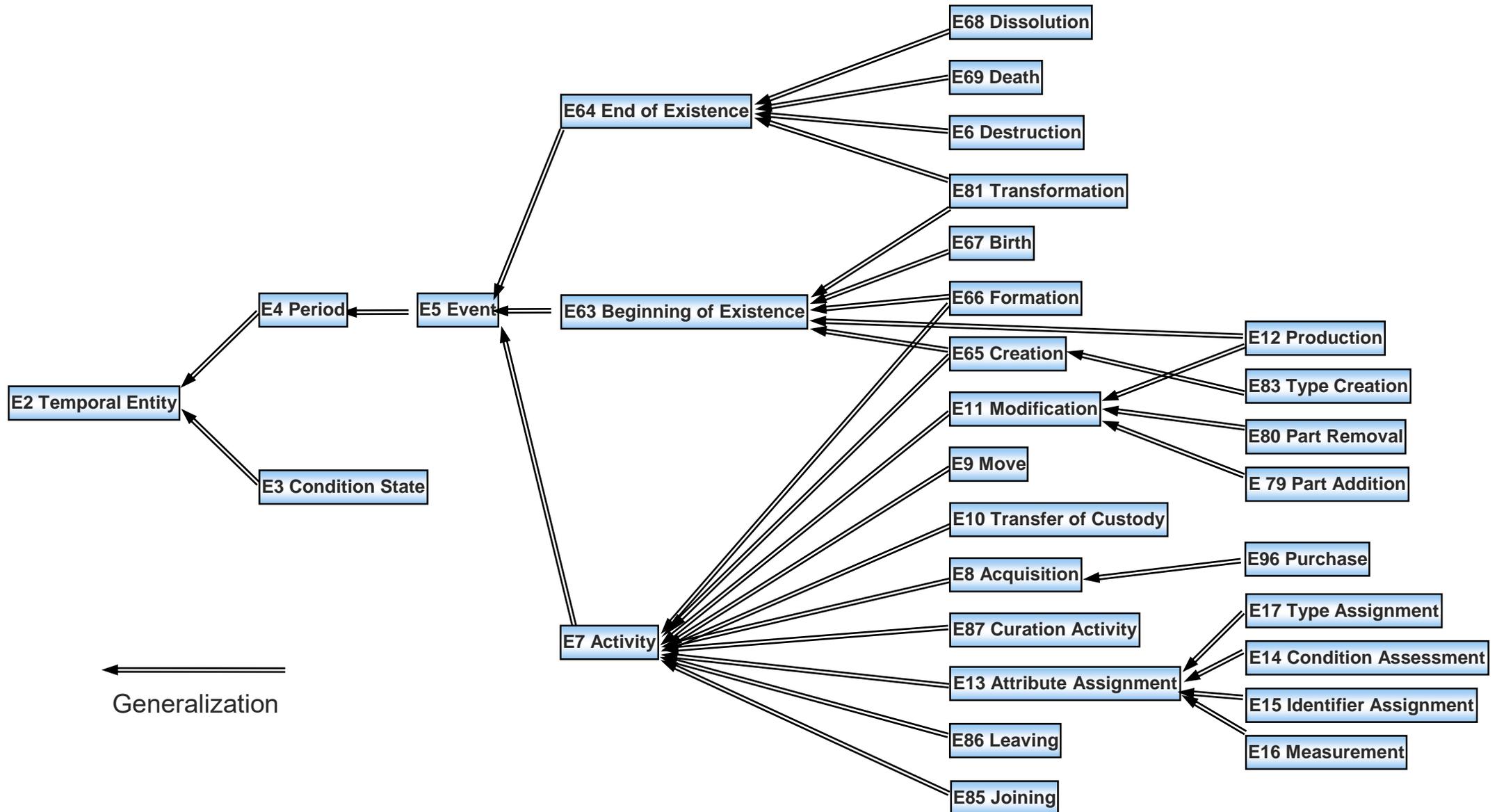
- ◆ **Identification** of real world items by real world names
- ◆ **Observation** and **Classification** of real world items
- ◆ **Part-decomposition** and structural properties of Conceptual & Physical Objects, Periods, Actors, Places and Times
- ◆ **Participation** of persistent items in temporal entities
 - creates a **notion of history**: “world-lines” meeting in space-time
- ◆ **Location** of periods in space-time and physical objects in space
- ◆ **Influence** of objects on activities and products and vice-versa
- ◆ **Reference** of information objects to any real-world item

Symbolic representation of "Winckelmann seeing Laocoon" as an evolution in space and time



CIDOC-CRM: The basic concepts

The E2 Temporal Entity Hierarchy



Scope note example: E2 Temporal Entity

E2 Temporal Entity (ΕγχρονηΟντότητα)

Scope Note:

This class comprises all **phenomena**, such as the instances of E4 Periods, E5 Events, which happen over a limited extent in time. This extent in time must be contiguous, i.e., without gaps. In case the defining kinds of phenomena for an instance of E2 Temporal Entity cease to happen, and occur later again at another time, we regard that the former instance of E2 Temporal Entity has ended and a new instance has come into existence. In more intuitive terms, the same event cannot happen twice

In some contexts, these are also called perdurants. This class is disjoint from E77 Persistent Item and is an abstract class that typically has no direct instances. E2 Temporal Entity is specialized into E4 Period, which applies to a particular geographic area (defined with a greater or lesser degree of precision), and E3 Condition State, which applies to instances of E18 Physical Thing.

Comments:

- *E2 is limited in time, is the **only link** to time, but is not time itself*
- *spreads out over a **place or object***
- *the **core** of a model of physical **history**, open for **unlimited** specialisation*

The CIDOC CRM

Temporal Entity- Subclasses

□ E4 Period (Περίοδος)

- ◆ binds together related phenomena
- ◆ introduces inclusion topologies - parts etc.
- ◆ Is confined in space and time
- ◆ the basic unit for **temporal-spatial** reasoning

□ E5 Event (Συμβάν)

- ◆ looks at the input and the outcome
- ◆ introduces participation of people and presence of things
- ◆ the basic unit for weak **causal** reasoning
- ◆ each event is a period if we study the process

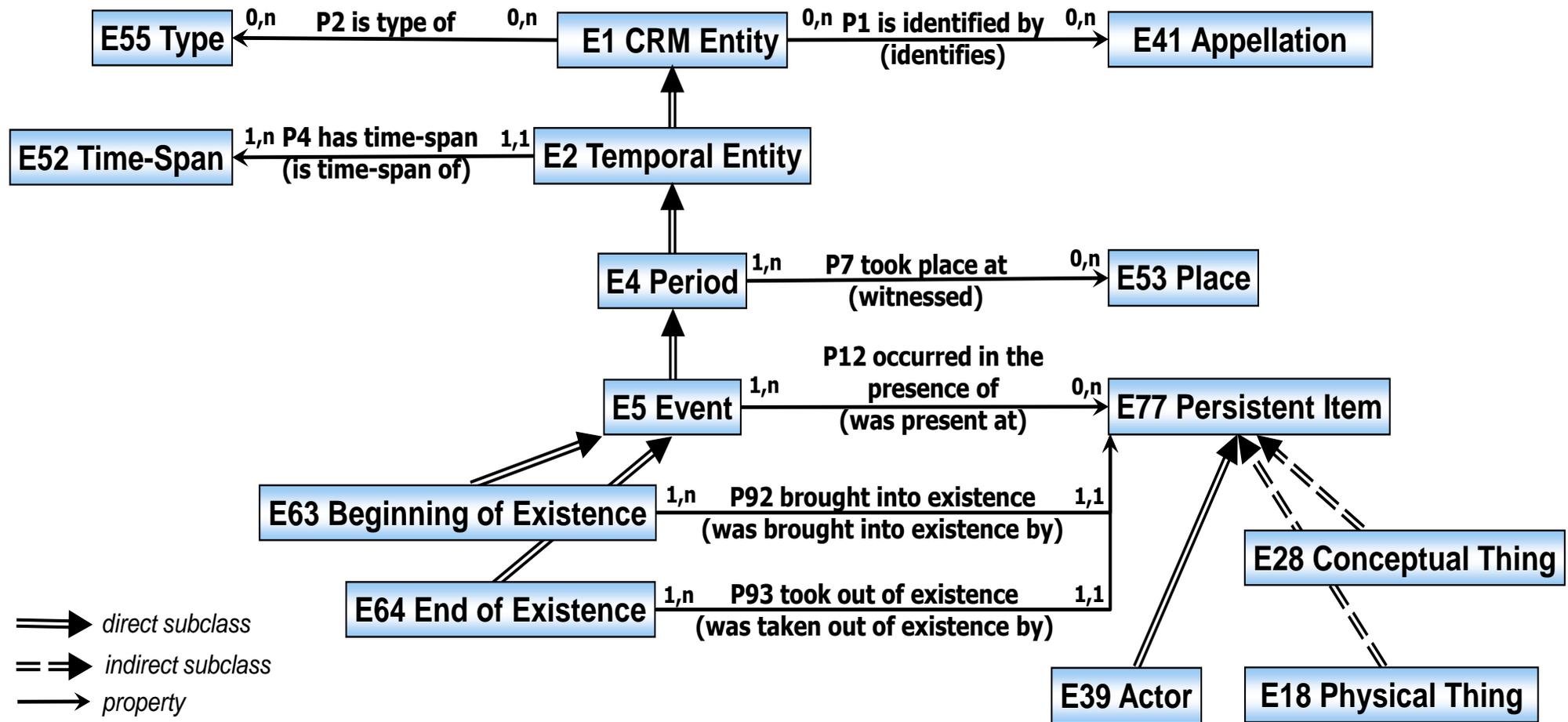
□ E7 Activity (Δράση)

- ◆ adds intention, influence and purpose
- ◆ adds tools

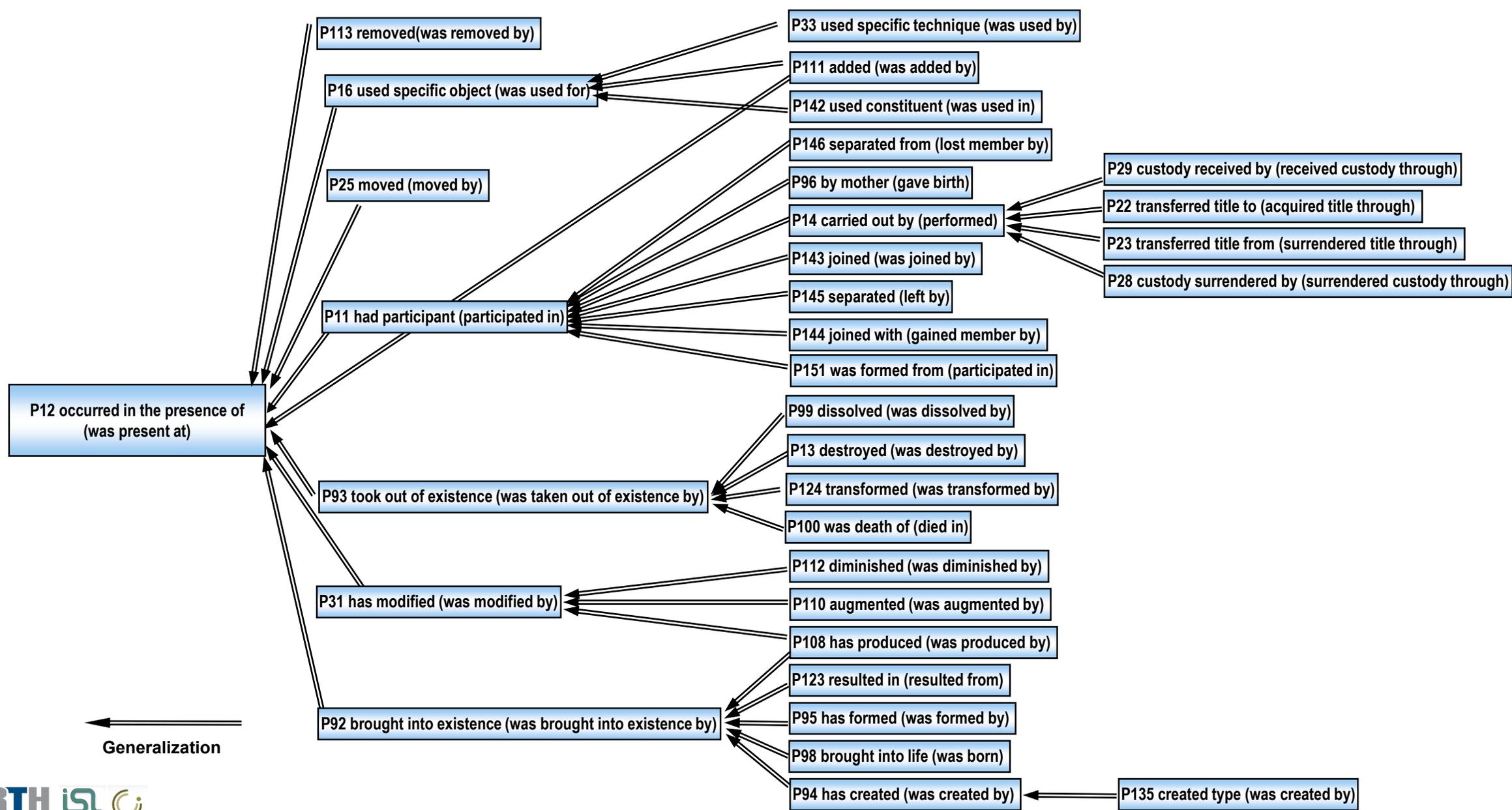
Temporal Entity-Main Properties

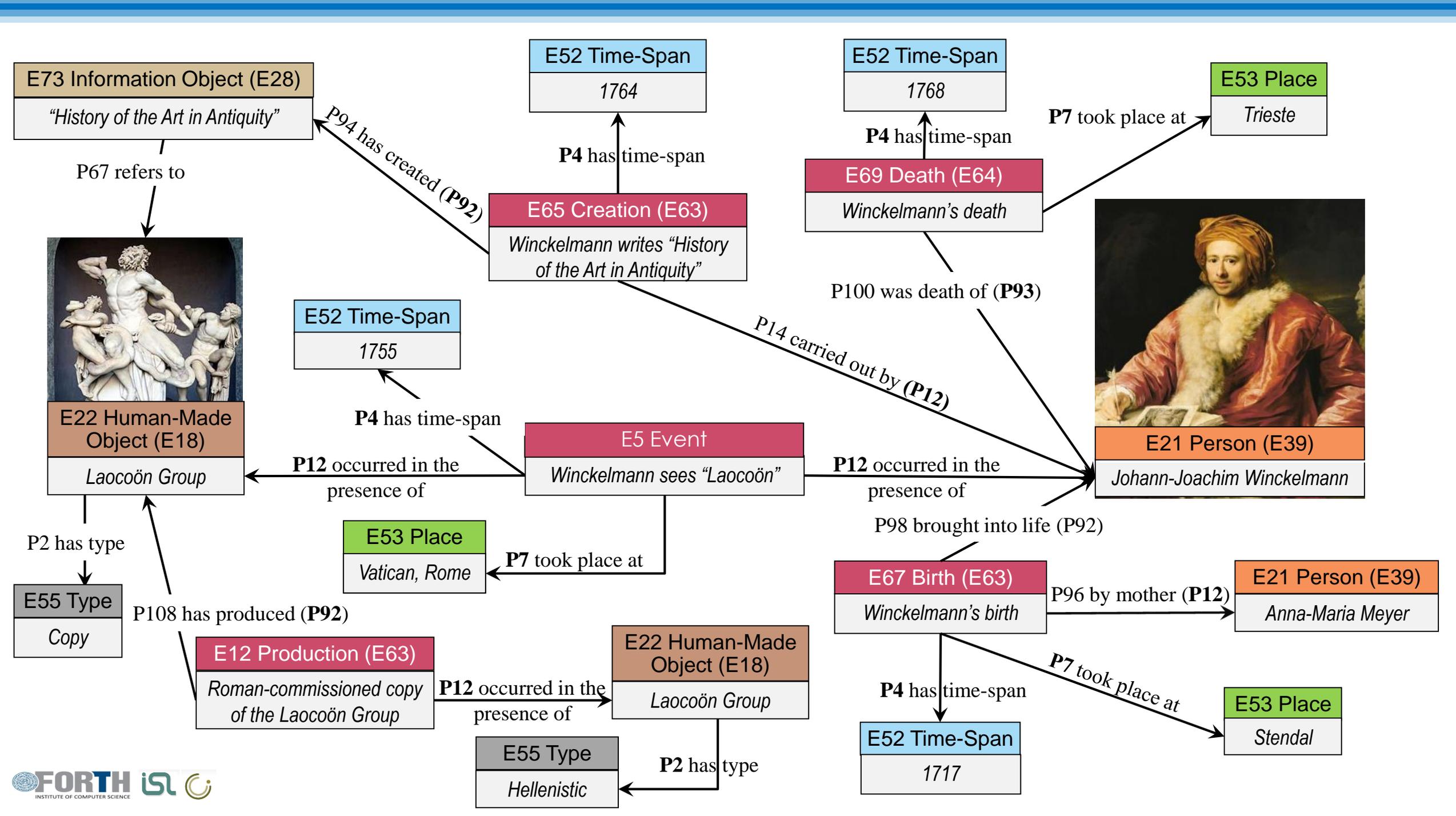
- E2 Temporal Entity (ΕγχρονηΟντότητα)
 - ❖ Properties: **P4 has time-span (is time-span of):** E52 Time-Span (Χρονικό Διάστημα)
- E4 Period (Περίοδος)
 - ❖ Properties: **P7 took place at (witnessed):** E53 Place (Τόπος)
P9 consists of (forms part of): E4 Period (Περίοδος)
P10 falls within (contains): E4 Period (Περίοδος)
- E5 Event (Συμβάν)
 - ❖ Properties: **P12 occurred in the presence of (was present at):** E77 Persistent Item (Όν)
P11 had participant (participated in): E39 Actor (Δράστης)
- E7 Activity (Δράση)
 - ❖ Properties: **P14 carried out by (performed):** E39 Actor (Δράστης)
P20 had specific purpose (was purpose of): E5 Event (Συμβάν)
P21 had general purpose (was purpose of): E55 Type (Τύπος)
P16 used specific object (was used for): E70 Thing (Πράγμα)
P125 used object of type (was type of object used in): E55 Type (Τύπος)

The basic concepts

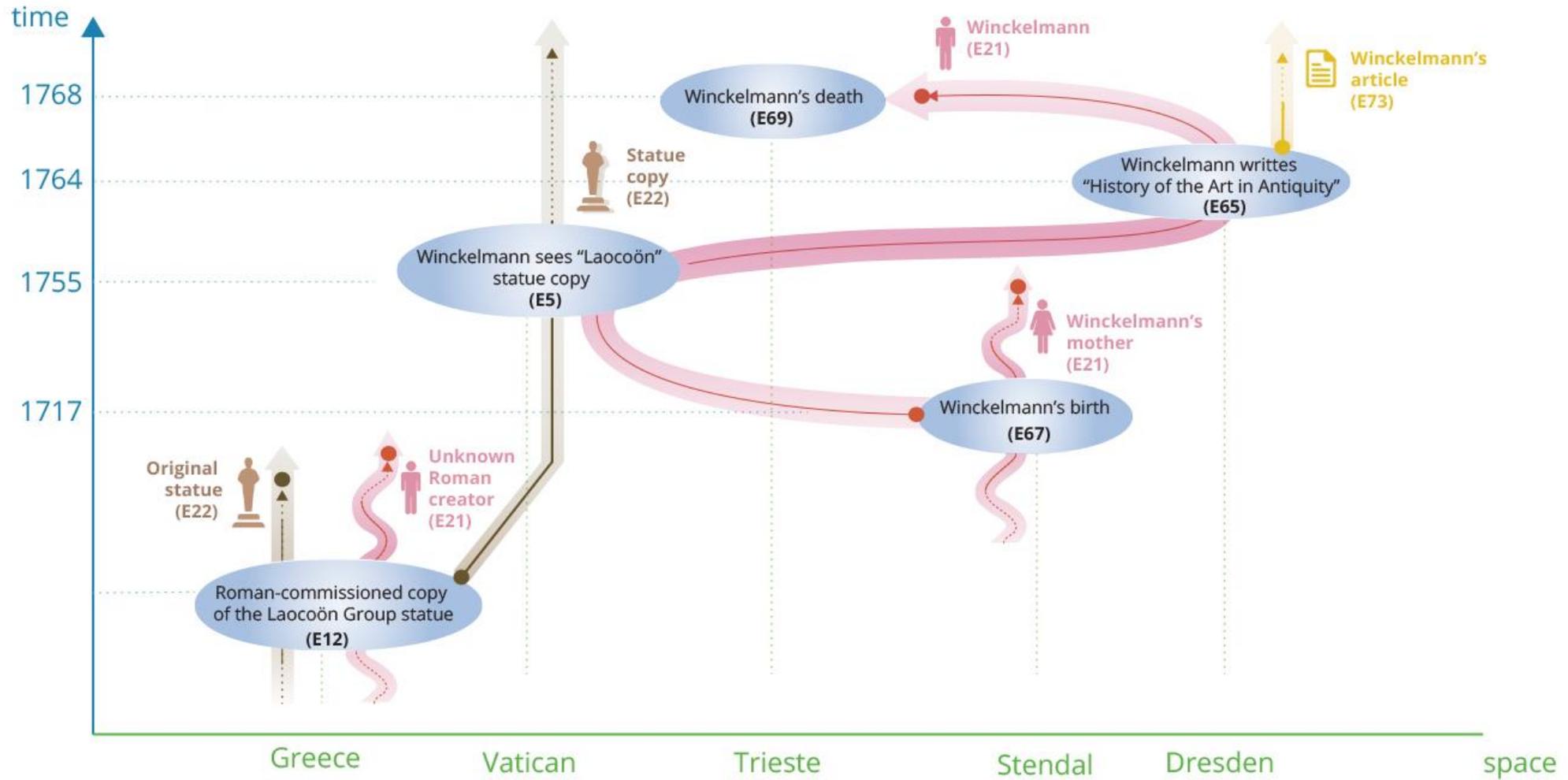


The Participation Properties

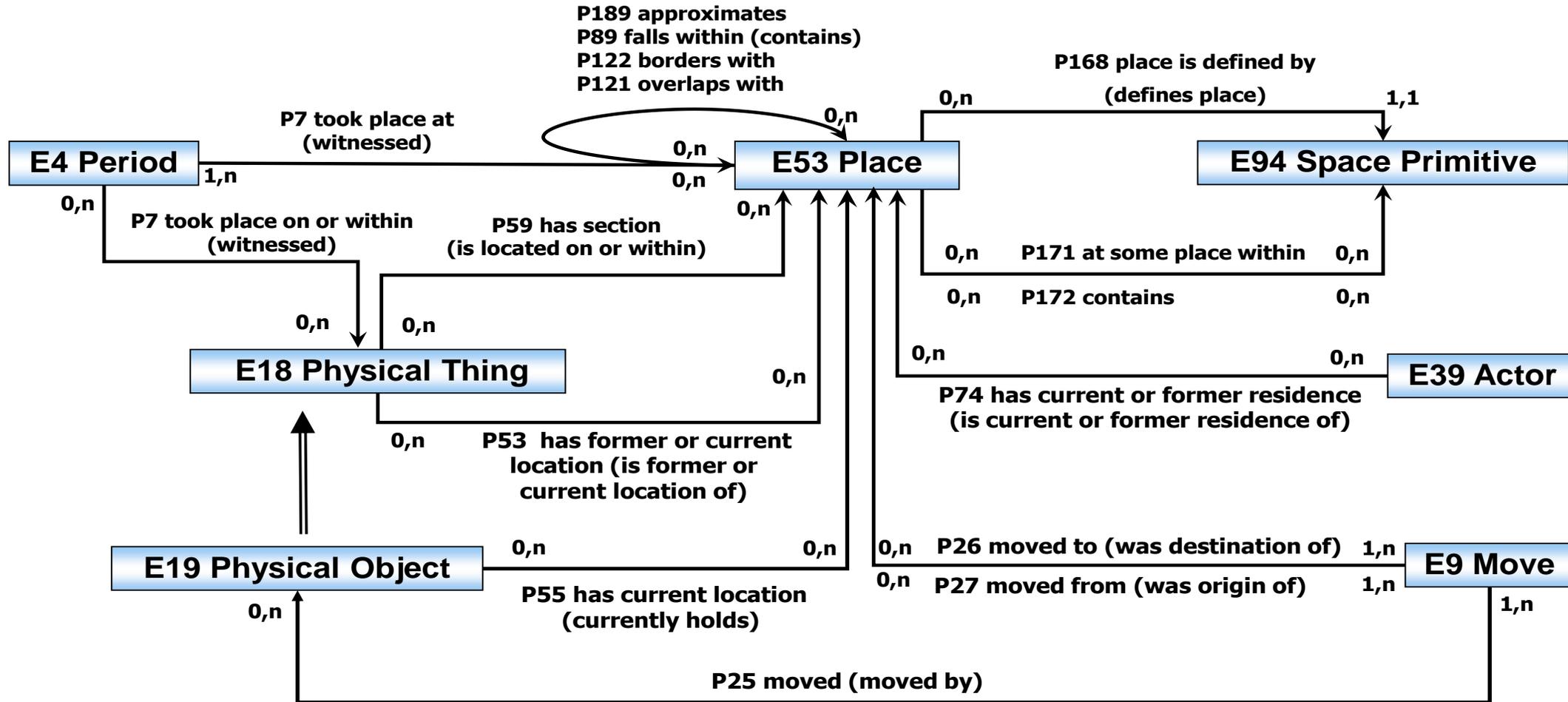




Symbolic representation of "Winckelmann seeing Laocoon" as an evolution in space and time

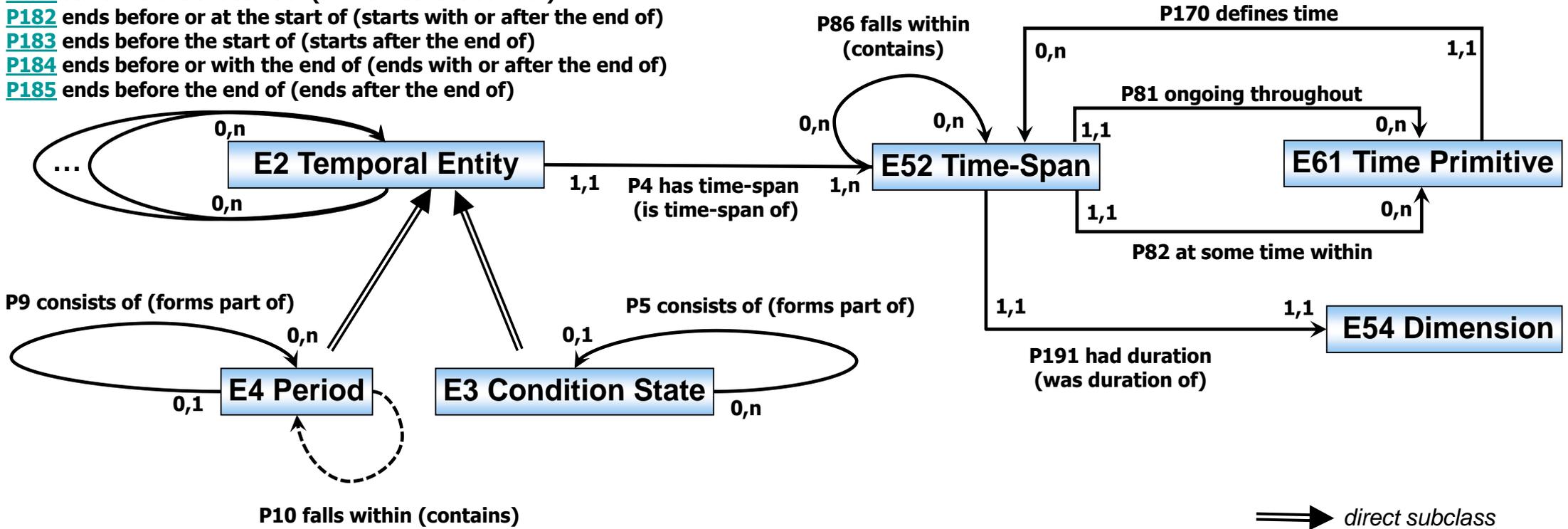


Reasoning about spatial information



Reasoning about temporal information

- P173** starts before or at the end of (ends with or after the start of)
- P174** starts before (starts after the start of)
- P175** starts before or with the start of (starts with or after the start of)
- P176** starts before the start of (starts after the start of)
- P182** ends before or at the start of (starts with or after the end of)
- P183** ends before the start of (starts after the end of)
- P184** ends before or with the end of (ends with or after the end of)
- P185** ends before the end of (ends after the end of)



- \Rightarrow direct subclass
- $\Rightarrow\Rightarrow$ indirect subclass
- \rightarrow property
- \dashrightarrow inherited property

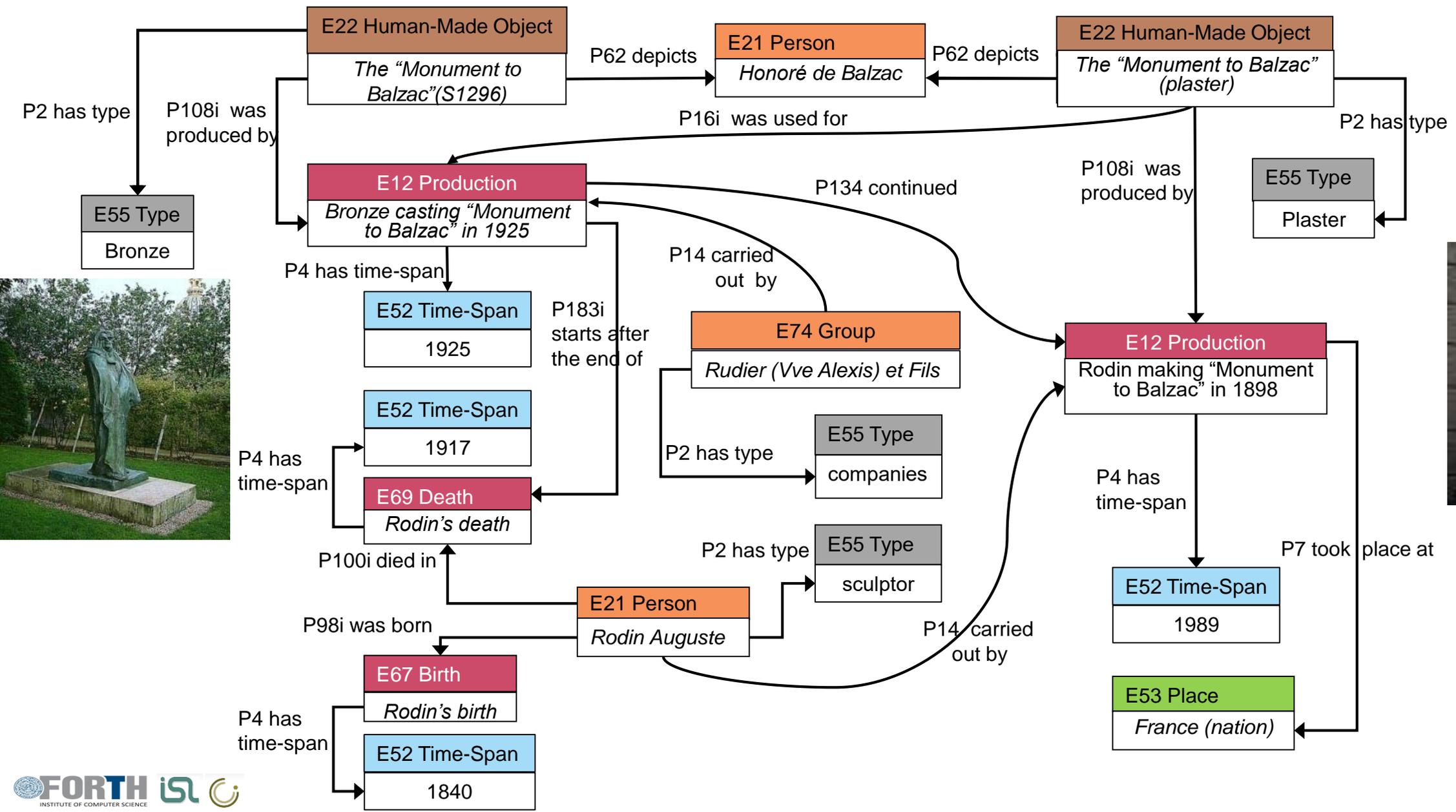
Παράδειγμα - Η Ιστορία του αγάλματος του Rodin

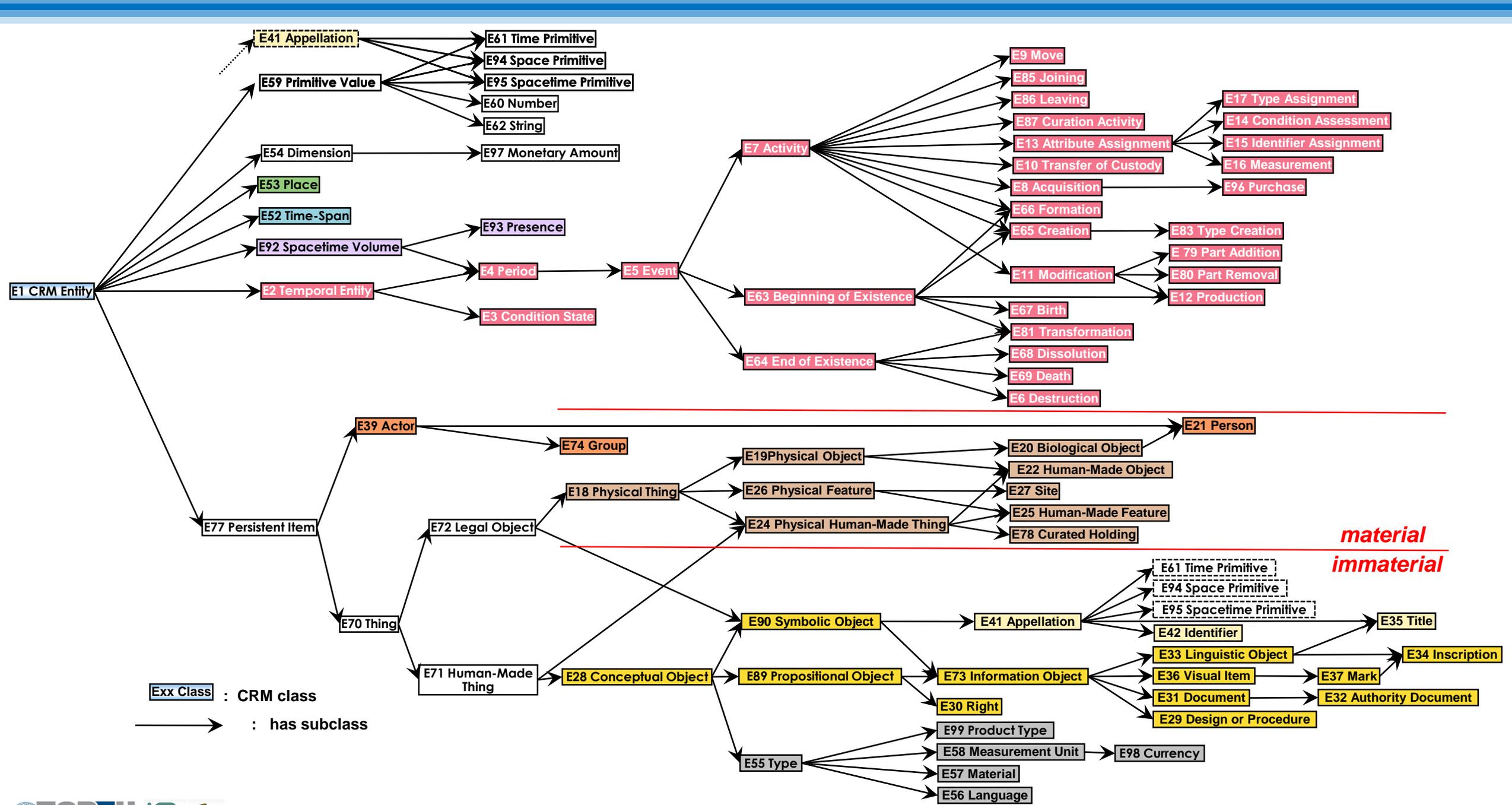
Ζητήθηκε από τον Rodin να τιμήσει έναν από τους σημαντικότερους μυθιστοριογράφους της Γαλλίας. Ο Rodin για επτά χρόνια προετοίμαζε το “Μνημείο στο Balzac”. Η τελική έκδοση σε γύψο εξετέθη στο Παρίσι το 1898, όπου μετά την κριτική που του έγινε ότι επρόκειτο για ένα αρχικό σχέδιο, ο Rodin απέσυρε το γύψινο μοντέλο στο σπίτι του στα περίχωρα του Παρισιού. Η χύτευσή του σε χαλκό έγινε αρκετά χρόνια μετά τον θάνατό του



Παράδειγμα - Η Ιστορία του αγαλματος του Rodin

Αναπαράσταση της πολυπλοκότητας με το CIDOC - CRM





material
immaterial

Exx Class : CRM class
→ : has subclass

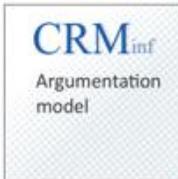
Family models – extensions of CIDOC CRM



intended to capture and represent the underlying semantics of *bibliographic information* and to facilitate the integration, mediation, and interchange of bibliographic and museum information.



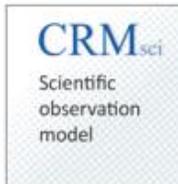
and FRBRoo, intended to capture and represent the underlying semantics of *bibliographic information* about continuing resources, and more specifically about periodicals (*journals, newspapers, magazines, etc.*).



intended to be used as a global schema for integrating metadata about *argumentation and inference making in descriptive and empirical sciences* such as biodiversity, geology, geography, archaeology, cultural heritage, conservation, research IT environments and research data libraries.



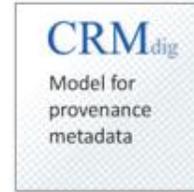
intended to document the *archaeological excavation process* and all the various entities and activities related to it. Also, it inherits from CRMsci most of the *geologarchaeological stratigraphical and stratigraphic principles* that govern, extending these principles.



intended to be used as a global schema for integrating metadata *about scientific observation, measurements and processed data* in descriptive and empirical sciences



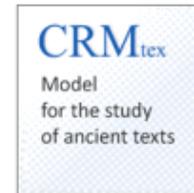
provide a global schema for integrating *spatiotemporal properties of temporal entities and persistent items and geoinformation* using the conceptualizations, formal definitions, encoding standards and topological relations defined by the Open Geospatial Consortium (OGC).



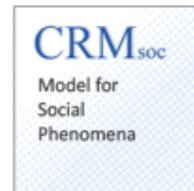
Intended to document the steps and methods of production ("provenance") of *digitization products and synthetic digital representations* such as 2D, 3D or even animated Models created by various technologies.



support the process of recording the evidences and the *discontinuities of matter on archaeological buildings*, for identifying the *evolution of the structure* throughout the centuries and to record the relationships between each of the building components among them and with the building as a whole



Support the documentation of study and edition of *ancient handwritten texts* and describe them by means of appropriate ontological instruments in a multidisciplinary perspective. The extension provides classes and properties more responsive to the specific needs of the various disciplines involved, including *papyrology, palaeography, codicology and epigraphy*.



for integrating data about *social phenomena and constructs* that are of interest in the humanities and social science based on analysis of documentary evidence.

Possible uses

The CIDOC CRM

Methodological aspects

- ❑ The CRM aims at semantic integration **beyond local context**.
- ❑ It aims at **pulling together all** relevant **sources** and data to **evaluate** a scientific or scholarly question not answered by an individual document
- ❑ Based on the CRM and its extensions, **effective integration schemata** can be defined, in encodings such as **RDFS, OWL** and **others**.
- ❑ The CRM can fit **rich and poor** models under **one common logical frame-work** . For instance Dublin Core (DC) maps to the CRM
- ❑ Idea: **Not** being **prescriptive** creates lots of flexibility
 - *It does **not propose what** to describe. It allows **interpretation of what** museums and archives actually describe*

The CIDOC CRM

Differences to other ontologies

- ❑ Generally: Many ontologies:-
 - lack an empirical base
 - have a functionally insufficient system of relationships (terminology driven)
 - Have a lack of functional specification
- ❑ The CRM misses concepts not in the empirical base (e.g., contracts), but detects concepts that are not lexicalized (e.g. "Persistent Item"), because they are functionally required
- ❑ DOLCE: Lexical base, intuition. Very good theoretically motivated logical description. Foundational relationships. Over specified relationships (e.g. modes of participation). Bad model of space-time. Strong overlap with CRM
- ❑ BFO: Philosophically motivated. Poor model of relationships. Unrealistic notion of a precise, deterministic underlying reality. Empirical verification difficult. Strong overlap with CRM
- ❑ SUMO, WordNet and others: Large aggregation of concepts without functional specifications

- ❑ The CIDOC Conceptual Reference Model
 - A **collaboration** with the International Council of Museums
 - An ontology of 86 classes and 137 properties for **culture** and **more**
 - With the capacity to **explain** hundreds of (meta)data formats
- ❑ Serving as:
 - **intellectual guide** to create schemata, formats, profiles
 - A language for analysis of existing sources for **integration**/ mediation
 - “Identify elements with **common meaning**”
 - **Transportation** format for data integration / migration / Linked Open Data
- ❑ Current Use
 - More than 500 European and National projects
 - Many organizations (30-35), such as national museums, galleries, libraries, national organizations around the world (UK, USA, China, Malaysia, Australia, Iran, Russia, Netherlands, Finland, Thailand, Germany, Taiwan, Sweden, France, Italy, Poland, Ireland etc.)

Current list of users (1)

- ❑ Linked Conservation Data - [Ligatus](#)
- ❑ [SARI](#); ETH Zurich
- ❑ Endangered Archaeology in the Middle East & North Africa (EAMENA) Database - A CRM based Ontology for Damage and Risk Assessment: [EAMENA - University of Oxford](#)
- ❑ [EAGLE](#) - Europeana network of Ancient Greek and Latin Epigraphy, [IDEA Association](#)
- ❑ The application of CIDOC CRM in modelling grey archaeological literature in Iran - [Kharazmi University](#) (Tehran, Iran)
- ❑ [Qoqnu:Cultural Heritage Information Management System](#), University of Cologne
- ❑ [symogh.org project](#) - [Data for History Consortium](#), Laboratoire de recherche historique Rhône-Alpes (LARHRA) , CNRS – France
- ❑ [MASA Consortium](#) (Mémoires des Archéologues et de Sites Archéologiques), [Huma-Num](#): a very large research infrastructure supported by CNRS, Aix Marseille University, Campus Condorcet
- ❑ Architectural Conservation process model (CPM), [Sapienza -University of Rome](#)
- ❑ [A Puzzle in 4D](#), [Austrian Academy of Sciences](#), [Austrian Centre for Digital Humanities and Cultural Heritage](#)
- ❑ [Research space project](#), [British Museum](#)
- ❑ [Sacrobosco's Sphaera](#) [Max Planck Institute](#)
- ❑ DOREMUS Project Bibliothèque Nationale de France
- ❑ DACH Project: Prehistoric copper production in the Eastern and Central Alps - technical, social and economic dynamics in space and time, Research Center HiMAT --University of Innsbruck

Current list of users (2)

- ❑ Conservation Documentation, University of the Arts, UK
- ❑ Geolat – geography for Latin literature, University of Eastern Piedmont, Italy
- ❑ Pleiades Project; Pin; University of Florence
- ❑ PRESSoo, IFLA; Bibliothèque Nationale de France
- ❑ Qualinca, Agence Bibliographique de l' Enseignement Supérieur (ABES)
- ❑ CRMgeo, Delving, Netherlands
- ❑ Creating Maps Based on Texts, King's College London
- ❑ OGC GeoSparql and CIDOC CRM, University of Innsbruck, King's College London/ University of Oslo, Zoologisches Forschungsmuseum Alexander Koening, Bonn, Germanisches Nationalmuseum –Nurenberg, Excellence Cluster TOPOI
- ❑ [A relational database structure and user interface for the CIDOC CRM with GIS integration](#), University of Innsbruck
- ❑ Latest EH work with, and plans for, Semantic Technologies, [STAR - Semantic Technologies for, English Heritage](#)
- ❑ The Environmental Informatics Programme, NeSC Edinburgh
- ❑ The Finnish National Gallery database implementation, [Finnish National Gallery](#)
- ❑ [WarSampo - Finnish World War II on the Semantic Wev, Semantic Computing Research Group \(SeCo\)](#)
- ❑ [WissKI](#), Friedrich-Alexander University of Erlangen-Nurenberg (FAU)--Dpt. Computer Science [[Digital Humanities Research, Grup]], Germanisches nationalmuseum (Nurenberg (GNM), Dpt. Museum Informatics, Zoologisches Forschungsmuseum Alexander Koenig, Bonn (ZFMK) [[Biodiversity Informatics Group]]
- ❑ The STELLAR Project, ADS (Archaeology Data Service),

Current list of users (3)

- ❑ [Arches Project](#), English Heritage, World Monuments Fund the J.Paul Getty Trust
- ❑ ARIADNE, a research infrastructure funded by the European Commission's H2020 programme
- ❑ [German Digital Library](#)
- ❑ Polish Digital Libraries, Poznań Supercomputing and Networking Center
- ❑ National Gallery Research Wiki, The National Gallery of London
- ❑ ART ontology, National Museum of Ireland
- ❑ [Berliner Kolloquium Digital Humanities](#)
- ❑ [Exploring Historical RDF with Heml](#), Institute of Ethnomusicology, Scientific Research Centre of the Slovenian Academy of Sciences and Arts, University of Ljubljana, Faculty of computer and Information Science
- ❑ A Formal Ontology of Narratives, Based on Narratology, Institute of Information science and technologies --CNR; Italy
- ❑ Projet Biblissima, Equipex Biblissima, Campus Condorcet, Bâtiment EPCC - Hôtel à projets, 8, cours des Humanités 93322 Aubervilliers CEDEX
- ❑ Archaeological field walking surveys, University of Groningen --Institute of Archaeology, Dpt. Of Classical and Mediterranean Archaeology

Current State

- ❑ The CIDOC CRM (also called CRMbase) standard provides the basic classes and relations devised for information integration in the cultural heritage world, including scientific observation records (with 82 classes and 181 properties)
- ❑ It is **complemented** by a series of modular extensions to the basic model. Such extensions are designed to support different types of specialized research questions and documentation such as bibliographic documentation or geoinformatics.
- ❑ The CIDOC CRM **extensions** are developed in partnership **with the research communities in question**. These extensions are formulated in a manner that is **harmonized** with the base ontology such that data expressed in any extension is compatible with the base system of concepts and relations. This harmonized development process leads to a high level of **information integrity** and integration not available in other information systems.

Thank you!
Questions ?



See more in <http://www.cidoc-crm.org/>