

2nd Workshop on Digital Information Management

Laboratory on Digital Libraries and Electronic Publishing
Ionian University

Developing a Metadata Model for Historic Buildings

Architecture Metadata Object Schema

ARMOS Draft Version

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ARMOS

Architecture Metadata Object Schema

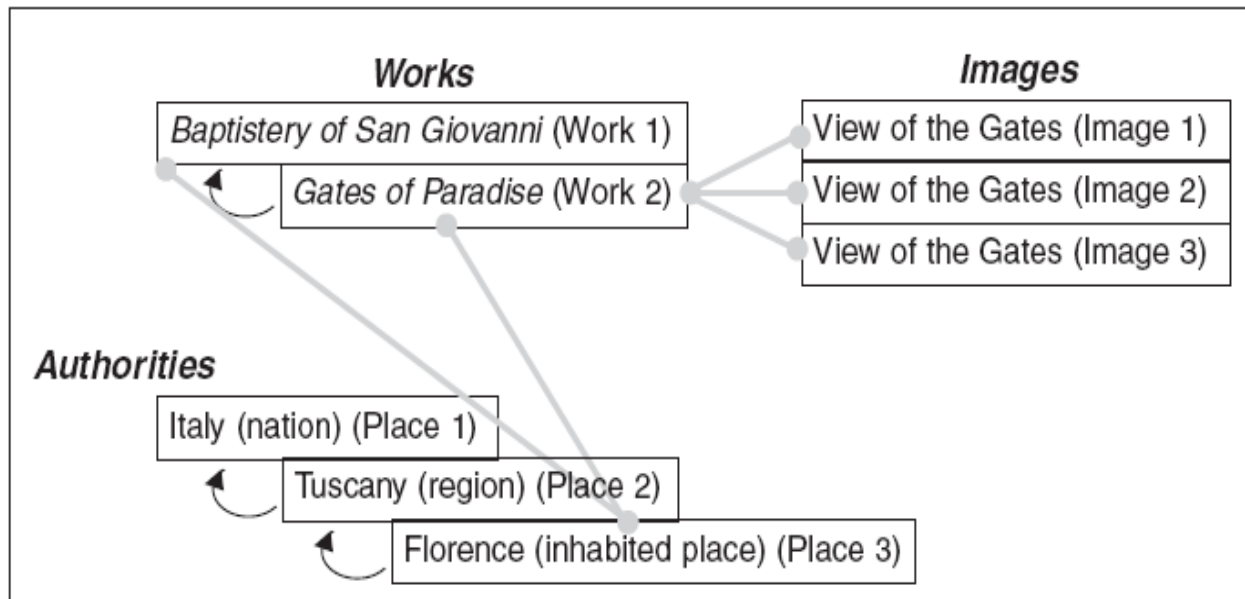
25-26 April 2012

Records of Architecture...What happens;

- Traditional flat metadata descriptions of works of architecture - Building is not a finished and irremovable object
- Architecture: A need for a movable perspective of continuous transformation
- Isolated and disconnected information
- From “Records”to Linked Data
- Starting to exam...relationships in architecture

Relationships

- Works – Images
- Works – Works
- Works – Authority Files Records
- Authority Files Records – Authority Files





The Battistero of San Giovanni – Gates of Paradise- Florence Italy (CCO, example)

Related Works

Intrinsic Relationships: Essential direct relationship between two works.

(whole – part Relationships)

e.g. Dome + Façade +



Extrinsic Relationships: Informative / not essential *see also*

e.g. Record for a building + interpretive documentation:
plans, sketches, models

Intrinsic Relationships

- In Case of Architecture – institutions owns only a part of a Work
- A part inherit information of the whole
- A record of the whole is essential
- Separate Records / Lack of Resource

Solution: A single record may be used for a group or collection of works (*FRBR calls this an aggregation*)

Extrinsic Relationship Types

Temporal

A building... *is a successor of...is a predecessor of*

A building is a preparatory work of another

Conceptual

A Building...*inspired from....is influenced from...is a variation of....*

Spatial

Two or more works intended to be seen together or share a common purpose ...*is similar of..*

...some institutions may find it unnecessary to identify them. (CCO)



LISTON (CORFU)

influenced from



RUE RIVOLI (PARIS)

Inspired from



TOWN HALL (GR. - CORFU)

is similar to



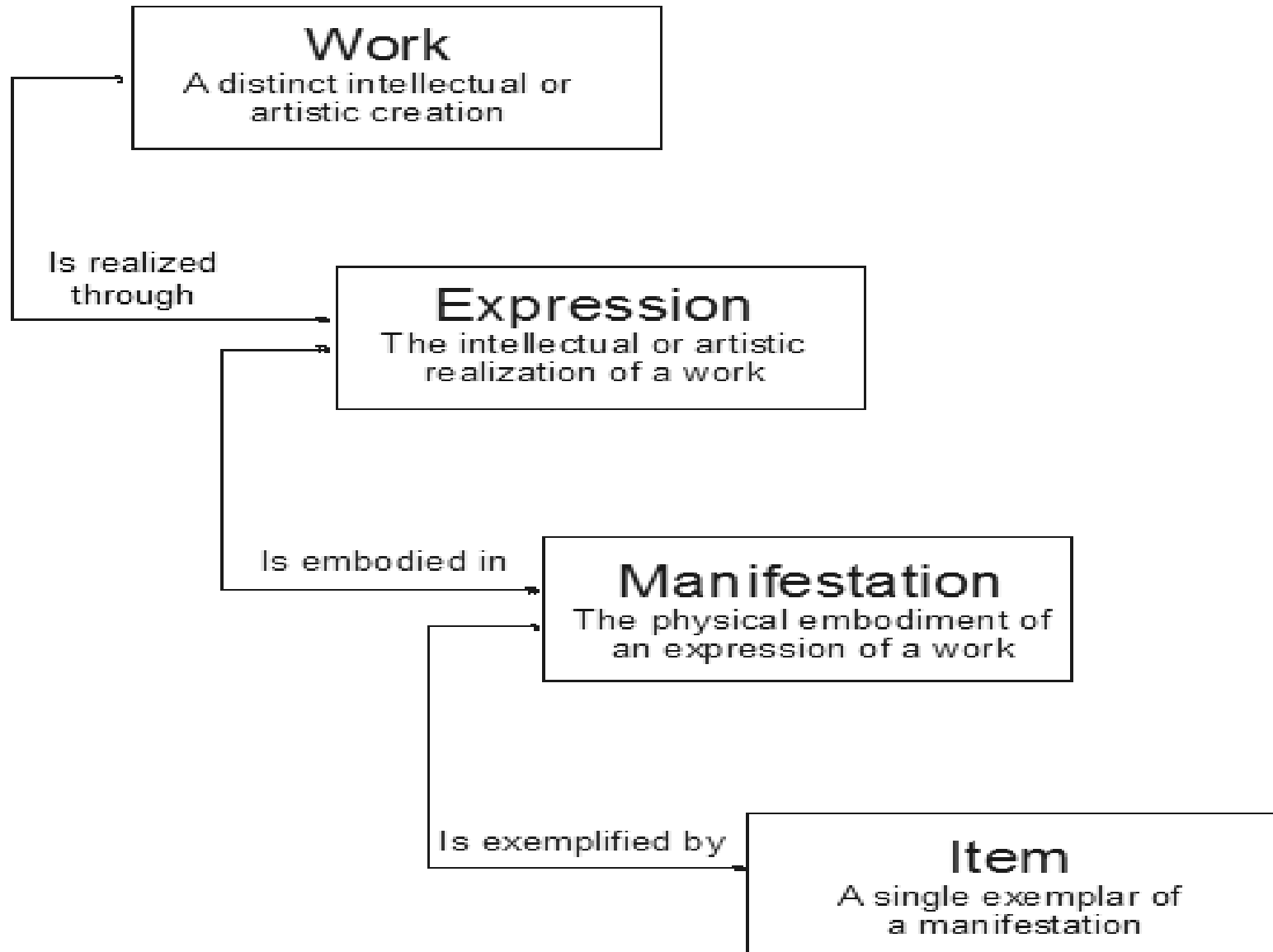
TOWN HALL (GR HERAKLION)



An ideal model could...

- Group buildings logically
- Connecting them
- Facilitate the discovery of all instances of a particular building type in a single search [find]
- Distinguish between the different morphological and typological features [identify]
- Navigate the user easily to the most appropriate. [select, obtain]

FRBR in bibliographic records



Adopting FRBR?

- “Work” for FRBR ≠ “Work” for material of our culture (CCO)
- A *work* is an abstract entity; there is no single material object - we recognize the *work* through individual realizations or *expressions* of the *work*,
- FRBR - push reasonable and helpful boundaries of work/expression

(Baca, Clarke 2007)

Architecture Theories - Morphology

- **Building:** Form+ Structure+ Content
- **Architectural Composition:** is the beginning of the existence of a structure
- **Morphology** refers to features such as: position in place, relationship with environment, relation between openings and solids, expression of materials such as texture and own color and the functional applied ornamentation.
- **Morphology** is not referred so much to the decoration of the building (this is style or the rhythm) as to the **elements** of its **general composition** such as facades, plans, walls, windows, balconies etc.

Architecture Theories - Typology

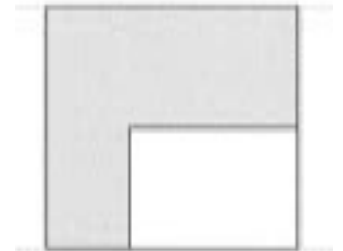
- **Typology**: In typological science, the term typology can be understood as a term purely used to classify individuals within a group.
- In the field of architectural design, **typology** is considered as a rigorous method for analysis, organization, and classification of a variety of buildings into representative classes (Lawrence, 1994; Schneekloth & Franck, 1994).
- **Typology** is a comparative classification of dominant architectural solutions with objective and rationally criteria.
- **Typological examination**: desire to simplify, reducing shapes to their basic geometries.
- **Type = thinking in groups**

Typology

Building Class ■ Educational Building

Building Type ■ High school

Typology Group ■ Two storey L shaped



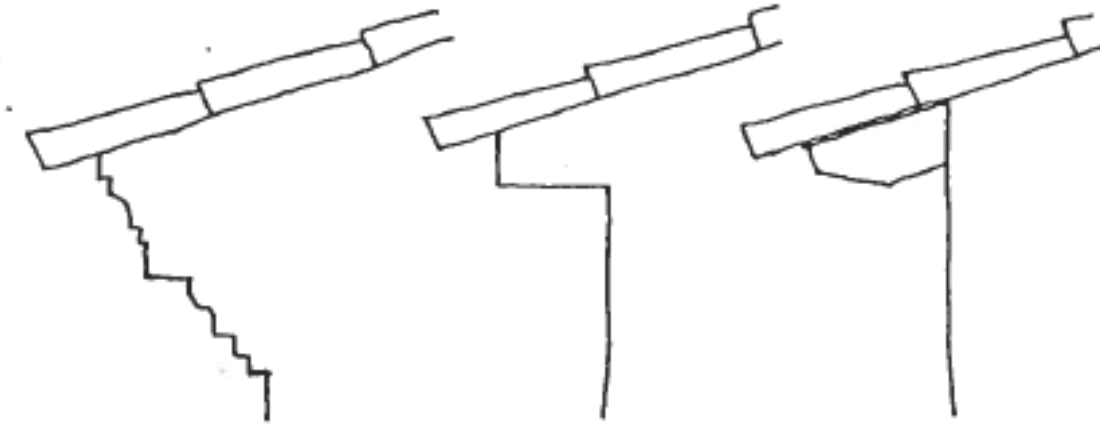
Architecture Theories - Patterns

- The process that produces architecture is originally based on **repeatability**, just like any other technical process
- Our entire way of thinking and seeing is controlled by typological perception of **patterns** that are based on repetitions.
- **Patterns**: in architecture is the capturing of architectural design ideas as archetypal and reusable descriptions (visual or textual) grouping objects by certain inherent structural similarities.

Patterns=typical samples

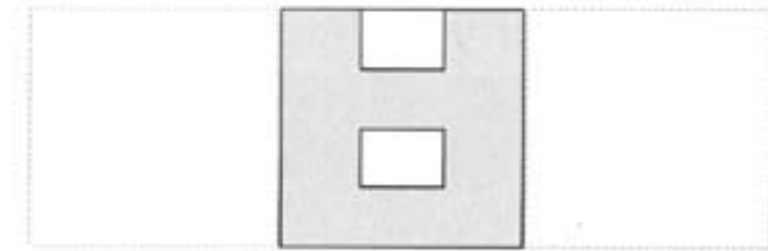
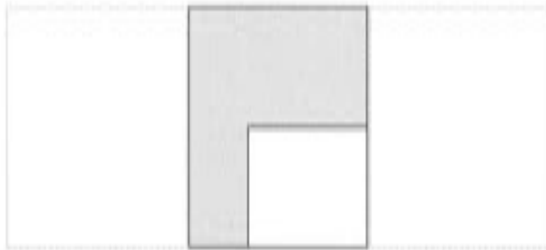
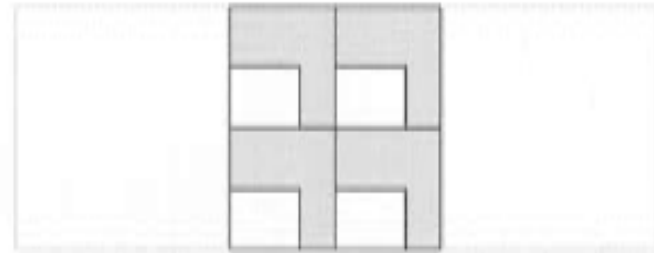
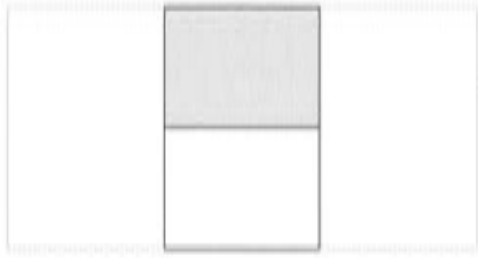


Patterns in Morphology



Roof Details

Patterns in Typology



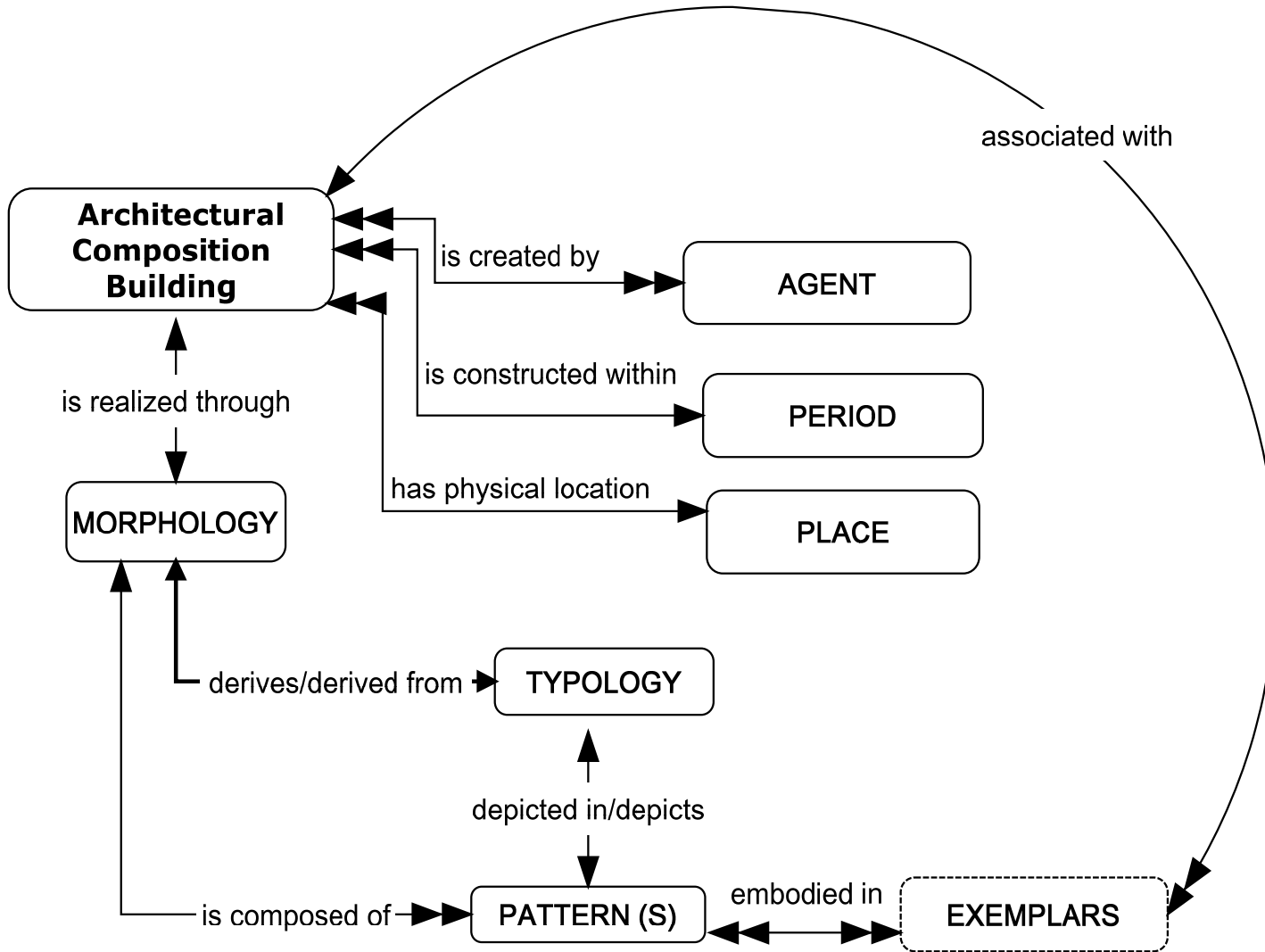
Floor plan types

Conceptual Modeling Tasks

- A CM identifying the entities - relationships - attributes.
- Syntax: A lightweight ER Model
- We use concepts that are meta, generic, abstract and philosophical, and therefore are general enough to address (at a high level) a broad range of domain areas.



Dual Attention: the model must be sufficiently accurate for its intended purpose / accurate with architecture theories



ArMOS Conceptual Model

ArMOS Draft Version

Architecture Metadata Object Schema

In reality....ArMOS is an **Harmonization Profile** of Inventory Systems

- Descriptive – Structural Information for a Building
- Descriptive - Technical Metadata for an Image of the building
- Administrative Metadata for Management Purpose (Designation Information)
- Descriptive metadata for: Area - Immovable Monument
- Descriptive metadata for a citation
- Descriptive metadata for an archival collection
- Extrinsic - Intrinsic Relationships

Element Vocabulary

Drawn elements from the following Namespaces

[CDI]

<http://archives.icom.museum/object-id/heritage/core.html>

[CDWA] [CDWALITE]

http://www.getty.edu/research/publications/electronic_publications/cdwa/

[ADAG]

http://www.getty.edu/research/publications/electronic_publications/fda/

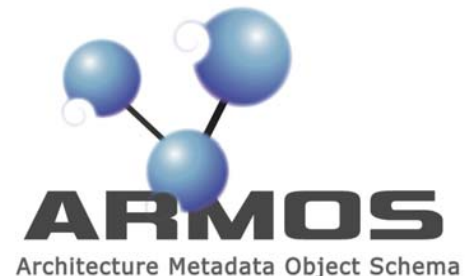
[OBJECT -ID]

<http://archives.icom.museum/object-id/>

[ARMOS] new elements locally defined

Element set for Management Purpose

<http://dlib.ionio.gr/standards/armos>



Appropriate Identification - Readability

Term URI: <http://dlib.ionio.gr/standards/armos/protectedSection>

Name : **protectedSection**

Label : **Protected Section**

Defined By: <http://dlib.ionio.gr/standards/armos>

Definition: -

Source Definition : -

Local Definition : **The term identifies the part (s) of the building, which is protected**

Local Comment: Values :

Local Comments: **Examples** : Listing may protect some fixtures and fittings, as well as outbuildings, boundary walls and all other structures 'within the curtilage'.

Type of term : **Element**

Refines : <http://dlib.ionio.gr/standards/armos/typeOfProtection>

Refined By :-

Has Encoding Scheme : -

Similar To : -

Broader Than : -

Narrower Than : -

Obligation : **O**

Condition : -

Datatype : **string**

Occurrence : **R**

The Community











Studying Inventory Systems

- 11 National Monument Inventories - Systems (Unesco, 1984)

Argentina, France, Canada, India, Italy, Japan, Mexico, Morocco, NY, Poland, Zambia

- On line National Monument Catalogues
Greece, Ireland, England...
- 60 - Organizations / Institutions from Greece

Metadata Types

Metadata Types	ARMOS Harmonization Level			
Descriptive				
Structural				Extended
Administrative				Extended

ARMOS Structure

- Abstract Hierarchical Model with no Formal Semantics
- Belongs to: IEEE LOM family of specifications
- Hierarchy of elements grouped into 16 categories
- Each category is comprised of sub-elements
- Single Elements or Aggregation of other elements

- Elements for:
 - Indexing information –searching and retrieval (for Administrative – Technical Metadata)
 - Display information – optimized for presenting information to the user (Descriptive –Structural Metadata)

Interoperability / Harmonization Issues

- Specification of URIs for metadata elements (CORES Resolution)
- Terms identified by source/value pairs can be assigned URIs.
- ARMOS is able to extend the hierarchy, while the entity-relationship-based models (e.g. DC) have no notion of "extensions" - base set elements

Open Issues

- A Model for ARMOS AP independent of ARMOS element set able to handle high structural complexity / specificity.
- The Notion of "Category" / no correspondence
- Different syntaxes useful in different contexts.