A formal ontology for the Italian Central Institute for Cataloguing and Documentation

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The ICCD cards' history

- years '70: the Italian Central Institute for the Catalogue and Documentation produced an early general cataloguing methodology
- years '90:
 - informatisation starts: the first software (SAXA e DESC) for the ICCD are released
 - ICCD cards are introduced for the majority of the cultural assets, as well as
 - authority files, for authors and bibliography are compiled.
 - 2004: the old ICCD schemas are revised and a new version (3.00) is released. The objectives were:
 - allow a better localization of the goods, and
 - achieve a better connection between the ICCD cards
 - standardize the structures of the paragraphs and fields for all the different types of cultural assets,

The hierarchical structure of the fields



The ICCD cards today

- 27 fields in the Bibliography card
- 300 fields in the Architecture card
- 200 fields in the average
- Millions of objects concerning the Italian Cultural Heritage are stored using the ICCD format

- each ICCD card is a form wholly devoted to one, and only one, specific piece of Cultural Heritage, always considered as a unit (the good), even in the case in which it comes to be a composition.
 - The good and the ICCD card are two distinguished entities.
 - We commonly use the term "subject" for referring to the good the card is dedicated to.

Here, "tracing" and "form" are synonyms of "card"

each ICCD card through its fields points out:

- the codes used to identify the subject and, at the same time, the ICCD card itself
- the relations between the subject of the card and other goods (described elsewhere)
- the documentation regarding the subject

moreover, the cards contain data concerning

- the typology
- the technical features
- the analytical data
- of the subject

- the ICCD forms have fields for collecting data about the history of the subject, with a particular view to:
 - present and past localizations
 - creation
 - finding
 - conservation conditions
 - interventions (reuse, restoration and analysis)
 - juridical and patrimonial conditions
 - There are also fields for annotating the key historical events of the card itself:
 - its creation
 - its revision
 - its informatisation

Moreover,

- There are fields that express relations that link the subject of the card to:
 - other Cultural Heritage
 - material
 - immaterial
 - person
 - physical
 - juridical
 - reference documentation
 - cards
 - photos
 - graphical objects
 - bibliography
 - source-documents
 - audio recordings
 - cinematographic documentations
 - multimedia documentations

some fields are present, without modifications, in all the different tracings

for ex.: the fields expressing the legal condition of the subject

certain fields belong to limited groups of tracings for ex.: there is one fixed set of fields for declaring the localization of all the types of moveable subjects, and there is another fixed set of fields for declaring the localization of all the types of real estates

some fields are found in just one specific tracing

for ex.: the paragraph "Appearance of the green area" is found only in the tracings of Parks and Gardens

The ontology ReMuNaICCD

- ontology language: OWL Lite⁻
- ontology editor: Protégé
- 381 classes
- 473 objectProperties
- 458 dataTypeProperties
- 750 instances (ICCD prescribed vocabulary)

The ontology ReMuNaICCD 2

root class:

R-Entity: the identifiable things

main dichotomy:

R-Concrete: the world of the Observable Phenomena

 R-Appellation: the world of the Predefined Terms
specification: super of all properties that have domain in R-Concrete and range in R-Appellation





The top level R-Concrete conceptualisation comes out from the following consideration:

The World of the Observable Phenomena is made up of



Understanding R:Concrete

"All the world's a stage, And all the men and women merely players: They have their exits and their entrances; And one man in his time plays many parts," from "As You Like It" (II,vii,140) by William Shakespeare.

"All the world's a stage, And all the Endurant merely players: They have their exits and their entrances; And one Endurant in his time plays many parts." from "ReMuNalCCD Handbook" by Aiello A., et al.



The Historicism Pattern

The class Participation formalizes the observation of one single R-Endurant playing the role specified by the property role, and exhibiting the participative attitude specified by the property participation_type.



The Historicism Pattern

The property has_participant connects two or more R-Participation instances to a unique Fragment_of_History instance. This permits to model the interactions among the R-Endurants.



The Historicism Pattern

Observations more complex than the single Fragment_of History are modelled by the class Historical_Event; the constructor relation is the objectProperty has_report



The Historicism Pattern The Historical_Events can be packed in Historical_Periods by means of the relation characterized by R-Concrete comprises space-time **R-Endurant R-Perdurant Space-Time** localization Region has present 1,...,n **R-Participation Fragment of History** 1,...,n role participation type **Historical Event** has report 2,...,n 2,...,n has_participant **Historical Period** characterized by

ICCD vs ReMuNaICCD: use case examples 1

Fact 1: the person "X" carried out the function of Scientific Director in a survey which enabled the finding of a good "Y"

- In the ICCD card of the good "Y", the name of "X" is reported in the fields (RCGA) which refere to the Scientific Director of the Survey reported in the fields (RCG)
- In ReMuNalCCD, three classes are instatiated: Phisical_Person, Participation, and Survey (a subclass of Fragment_of_History)



ICCD vs ReMuNaICCD: use case examples 2

- Fact 2: the same person "X" of Fact 1 carried out the function of collaborator responsible for compiling the ICCD card of a good "Z"
- In the ICCD card of the good "Z", the name of "X" is reported in the fields (FUR) which refere to the Responsible of the same card.
- In ReMuNaICCD, two new instances are created: Participation2, and an instance of ICCD_Compilation (a subclass of Fragment_of_History)



Example: The Restoration Pattern



An advice comes out from our experience

BE CAREFUL

- To move data from ICCD cards to ReMuNaICCD has not been an easy task.
- The theoreticians of Formal Ontology should take seriously into consideration the development of <u>formal systems</u> for the modelling of:
- ontological patterns,
- mappings from input data structures to ontological patterns, and
- instructions for the use of the ontological patterns.

