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# **Introduction**

This document presents an extension of CIDOC-CRM to support propositions about visual items. With the term visual items we refers to those signs, present in 2D/3D visual object, which are identified as having their own identity.

Goal of this model is to provide a framework for specifying the identity and the relation of those signs, recording the interpretation of a specialist, as well as to maximize the clustering process through automation.

The overall model is based on a constructivist approach, which differentiates between the reality identified, and the interpretation given to its visual structure by a person. Therefore, the model, following the structure of CRM, represents propositions relating to the physical aspect and to the interpretation in two different semantic spaces: physical and conceptual.

This distinction allows us to present the gestalt of an item as a first layer of meaning in the identification of visual features. The recognition of what constitute a part and a whole is relative to the interpreter (his knowledge about the object, or its domain, the type of affordance he applies to the object etc.) and it is important to record it because it helps shapes his following analysis.

The assignment, by an actor, of one (or multiple) particular identity/ies to a representation is the second level of meaning. The model takes into account that the recognition of a representation is based on the attributes linked to it by a certain tradition.

Moreover, the model clearly separates the identity of the object and its subject, which is a human construction, and can vary between different systems. Only such type of differentiation can allow us to integrate different visual sources. While providing the means for expressing the relationships the ontology does not offer any subject-based classification, but rely on the one already present, such as *iconclass*, the *thésaurus iconographique* of Garnier etc.

# **Naming**

All the classes declared were given both a name and an identifier constructed according to the conventions

used in the CIDOC CRM model.

For the classes, the identifier consists of the two letters **IC** followed by a number. Resulting properties were also given a name and an identifier: the letter **K** followed by a number. Inverse properties share the same identifier, the letter **K** followed by a number, plus the character "i" (inverse). every time the property is mentioned "backwards", i.e., from target to domain (inverse link).

# **Entities**

E7	<u>E1</u>	CRM Entity	у	
E14	<u>E7</u>		Ac	ctivity
E15    -    -    -    -    Identifier Assignment      E16    -    -    -    -    -    Measurement      IC12    -    -    -    -    -    Wisual Recognition      IC17    -    -    -    -    -    Anchorage      E17    -    -    -    -    -    Anchorage      E17    -    -    -    -    -    Type Assignment      E18    -    -    -    -    -    Physical Thing      E26    -    -    -    -    Physical Feature      IC19    -    -    -    -    Recto      IC20    -    -    -    -    -    Recto      E24    - </td <td><u>E13</u></td> <td></td> <td>-</td> <td>Attribute Assignment</td>	<u>E13</u>		-	Attribute Assignment
E16	<u>E14</u>		-	- Condition Assessment
IC12	<u>E15</u>		-	- Identifier Assignment
IC17    -    -    -    -    Anchorage      E17    -    -    -    -    Type Assignment      E18    -    -    -    Physical Thing      E26    -    -    -    Physical Feature      IC19    -    -    -    Recto      IC20    -    -    -    -    Recto      IC20    -    -    -    -    Verso      E24    -    -    -    -    Physical Man-Made Thing      E22    -    -    -    -    Man-Made Object      E25    -    -    -    -    Man-Made Feature      IC1    -    -    -    -    -    Layer      E28    -    -    -    -    Layer      E28    -    -    -    -    Conceptual Object      E73    -    -    -    Symbolic Object      E27    -	<u>E16</u>		-	- Measurement
E17	IC12		-	- Visual Recognition
E18    -    -    -    Physical Thing      E26    -    -    -    Physical Feature      IC19    -    -    -    Recto      IC20    -    -    -    Verso      E24    -    -    -    Physical Man-Made Thing      E22    -    -    -    Man-Made Object      E25    -    -    -    -    Man-Made Feature      IC1    -    -    -    -    Man-Made Feature      IC2    -    -    -    -    Man-Made Feature      IC3    -    -    -    -    Man-Made Feature      IC4    -    -    -    -    -    Man-Made Feature      IC4    -	IC17		-	- Anchorage
E26    -    -    -    -    Physical Feature      IC19    -    -    -    -    Recto      IC20    -    -    -    -    Verso      E24    -    -    -    -    Verso      E24    -    -    -    -    Wan-Made Thing      E22    -    -    -    -    Man-Made Object      E25    -    -    -    -    Man-Made Feature      IC1    -    -    -    -    Man-Made Feature      IC2    -    -    -    -    Man-Made Feature      IC3    -    -    -    -    -    Man-Made Feature      IC3    -    -    -    -    -    -    -    -    -      E28    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -<	<u>E17</u>		-	- Type Assignment
IC19    -    -    -    Recto      IC20    -    -    -    Verso      E24    -    -    -    Physical Man-Made Thing      E22    -    -    -    Man-Made Object      E25    -    -    -    -    Man-Made Feature      IC1    -    -    -    -    Iconographical Atom      IC8    -    -    -    -    -    -    Iconographical Atom      IC9    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -	<u>E18</u>		<b>P</b> ]	hysical Thing
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E24    -    -    -    -    Physical Man-Made Thing      E22    -    -    -    -    -    Man-Made Object      E25    -    -    -    -    -    Man-Made Feature      IC1    -	<u>IC19</u>		-	- Recto
E22    -    -    -    -    Man-Made Object      E25    -    -    -    -    -    Man-Made Feature      IC1    -    -    -    -    -    -    Iconographical Atom      IC8    -    -    -    -    -    Layer      E28    -    -    -    -    Conceptual Object      IC16    -    -    -    Conceptual Object      E90    -    -    -    Character      E90    -    -    -    -    Character      E90    -    -    -    -    Symbolic Object      E73    -    -    -    -    -    Design or Procedure      E31    -    -    -    -    -    -    -    Document      E33    -    -    -    -    -    -    -    Representation      IC11    -    -    -    -	<u>IC20</u>		-	- Verso
E25    -    -    -    -    -    Man-Made Feature      IC1    -    -    -    -    -    Iconographical Atom      IC8    -    -    -    -    Layer      E28    -    -    -    Conceptual Object      IC16    -    -    -    Character      E90    -    -    -    Character      E90    -    -    -    Symbolic Object      E73    -    -    -    Design or Procedure      E31    -    -    -    -    Document      E33    -    -    -    -    -    Document      E36    -    -    -    -    -    -    Nisual item      IC9    -    -    -    -    -    Representation      IC11    -    -    -    -    -    Attribute      E38    -    -    -    - <td><u>E24</u></td> <td></td> <td>-</td> <td>Physical Man-Made Thing</td>	<u>E24</u>		-	Physical Man-Made Thing
IC1    -    -    -    -    -    Lonographical Atom      IC8    -    -    -    -    Layer      E28    -    -    -    Conceptual Object      IC16    -    -    -    Character      E90    -    -    -    Symbolic Object      E73    -    -    -    -    Design or Procedure      E27    -    -    -    -    Document      E31    -    -    -    -    -    Document      E33    -    -    -    -    -    Document      E36    -    -    -    -    -    -    Document      E36    -    -    -    -    -    -    Representation      IC11    -    -    -    -    -    Representation      IC10    -    -    -    -    -    -    -    Personification	<u>E22</u>		-	- Man-Made Object
IC8    -    -    -    -    Layer      E28    -    -    -    Conceptual Object      IC16    -    -    -    Character      E90    -    -    -    -    Symbolic Object      E73    -    -    -    -    Information Object      E27    -    -    -    -    -    Design or Procedure      E31    -    -    -    -    -    Document      E33    -    -    -    -    -    Document      E36    -    -    -    -    -    -    Visual item      IC9    -    -    -    -    -    Representation      IC11    -    -    -    -    -    Representation      IC10    -    -    -    -    -    Attribute      E38    -    -    -    -    -    Appellation	E25		-	- Man-Made Feature
E28    Conceptual Object      IC16    Character      E90    Symbolic Object      E73    Information Object      E27    Design or Procedure      E31    Document      E33    Document      E36    Linguistic Object      E36    Visual item      IC9    Representation      IC11    Personification      IC10    Attribute      E38    Appellation      E41    Type	IC1		-	Iconographical Atom
IC16    -    -    -    Character      E90    -    -    -    -    Symbolic Object      E73    -    -    -    -    Information Object      E27    -    -    -    -    Design or Procedure      E31    -    -    -    -    -    Document      E33    -    -    -    -    -    Linguistic Object      E36    -    -    -    -    -    Visual item      IC9    -    -    -    -    -    Representation      IC11    -    -    -    -    -    -    Personification      IC10    -    -    -    -    -    -    Attribute      E38    -    -    -    -    -    Appellation      E89    -    -    -    -    -    Type	IC8		-	Layer
E90    -    -    -    -    Symbolic Object      E73    -    -    -    -    Information Object      E27    -    -    -    -    Design or Procedure      E31    -    -    -    -    -    Document      E33    -    -    -    -    -    Document      E36    -    -    -    -    -    Linguistic Object      E36    -    -    -    -    -    Visual item      IC9    -    -    -    -    -    Personification      IC11    -    -    -    -    -    Personification      IC10    -    -    -    -    -    Attribute      E38    -    -    -    -    -    Appellation      E89    -    -    -    -    -    Propositional Object      E55    -    -    - <t< td=""><td><u>E28</u></td><td></td><td>Co</td><td>onceptual Object</td></t<>	<u>E28</u>		Co	onceptual Object
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E27    -    -    -    -    -    Design or Procedure      E31    -    -    -    -    -    Document      E33    -    -    -    -    -    Document      E36    -    -    -    -    Linguistic Object      E36    -    -    -    -    -    Visual item      IC9    -    -    -    -    Representation      IC11    -    -    -    -    Personification      IC10    -    -    -    -    Attribute      E38    -    -    -    -    Appellation      E41    -    -    -    -    Propositional Object      E55    -    -    -    Type	<u>E90</u>		-	Symbolic Object
E31    -    -    -    -    -    Document      E33    -    -    -    -    -    Linguistic Object      E36    -    -    -    -    -    Visual item      IC9    -    -    -    -    Representation      IC11    -    -    -    -    -    Personification      IC10    -    -    -    -    -    Attribute      E38    -    -    -    -    -    Appellation      E89    -    -    -    -    -    Propositional Object      E55    -    -    -    -    Type	<u>E73</u>		-	- Information Object
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IC9	<u>E33</u>		-	Linguistic Object
IC 11	<u>E36</u>		-	Visual item
IC10  Attribute    E38  Image    E41  Appellation    E89  Propositional Object    E55  Type	IC9		-	Representation
E38  Image    E41  Appellation    E89  Propositional Object    E55  Type	IC 11		-	Personification
E41  Appellation    E89  Propositional Object    E55  Type	IC10		-	Attribute
E89    Propositional Object      E55    Type	<u>E38</u>		-	Image
<u>E55</u> Type	<u>E41</u>		-	- Appellation
71	<u>E89</u>		-	Propositional Object
IC5 Color	<u>E55</u>		-	Type
	IC5		-	- Color

# Classes

#### **IC1 Iconographical Atom**

Subclass of: E25 Man-Made Feature

An iconographical atom is a physical arrangement of forms/colours created by human activity

#### Proprieties:

K1 denotes (is denoted by): E36 Visual Item

#### IC5 - Color

Subclass of: E55 Type

The class comprise concept coming from vocabularies and thesauri used to characterize the combination of a particular pigment (or set of pigments) with the reflected or transmitted light

#### Example:

The color usually identified as gold

#### **IC8 Layer**

Subclass of: E25 Man-Made Feature

A layer is a stratum composed by one or more materials that cover a surface, or part of it, of a physical body. A Layer usually can rest on a physical object (wall), but can rest also on a previous layer.

#### Proprieties:

K27 rest on (has layer): E18 Physical Thing

## **IC9 Representation**

Subclass of: E36 Visual Item

The nuclear characteristics which are recognised to belong to the same type

#### Example:

The painting "La primavera" in Botticelli

The last judgment wall painting in Asinou

The impresa of Bernardo Cles in the Buonconsiglio castle in Trento

The Maria Maddalena statue by Donatello.

The Bayeux Tapestry.

# Proprieties:

K20 is composed of (forms part of): IC9 Representation

K22 has personification (is present in): IC11 Personification

K23 connote (is connotation of): E90 Symbolic Object

K17 has attribute (is attribute of): IC10 Attribute

K24 portray (is portrayed in): IC16 Character

K34 illustrate (is illustrated by): E73 Information Object

K4 is visual prototype of (has visual prototype): IC9 Representation

#### IC10 Attribute

#### Subclass of: E36 Visual Item

A set of features considered by a viewer more salient than others and used as a key for the identification of a Representation. The attribute could correspond to iconographical elements or simple sign which the viewer use to provide a stable identity to the visual object.

#### Example:

The cross in the Anastasia Samaralina painting in Asinou that symbolize the Martyrdom. The dragon in "Saint George and the Dragon" by Tintoretto.

# Proprieties:

K17 is attribute of (has attribute): IC9 Representation K21 depict (is depiction of attribute): E70 Thing

#### **IC11 Personification**

Subclass of: IC9 Representation

A human, or anthropomorphic figure, that represents an abstract idea or a concept.

#### Example:

Marianne in "La Liberté guidant le people" of Delacroix.

# **Proprieties:**

K25 symbolize (is personification of): E90 Symbolic Object

#### **IC12 Visual Recognition**

Subclass of: S4 Observation

The activity of assigning the iconographical status to a man-made object, or to one of its parts. It takes into account the possibility to link it to a speech act or a document where the authoritative proposition is clearly made.

#### Example:

An expert saying that object A is a IC9 Representation

The recognition that a simple drawing represents a type of animal

# Proprieties:

K9 assigned status to (has status assigned by): E18 Physical Thing

K11 assigned (was assigned by): E36 Visual Item

K10 on the base of (is basis for): E89 Propositional Object

#### **IC16 Character**

Subclass of: F38 Character

This class comprises fictional individuals, or groups, appearing in a 2D/3D representation. Each character portrayed can have a type, for example "Saint" or "layman". Every saint portrayed is considered here as a character and not as an actor.

# Example:

St. Anastasia in the Panel "Anastasia & Anastasia" in Asinou.

#### Proprieties:

K26 Has source E39 Actor

# IC17 Anchorage

Subclass of: S4 Observation

The class document the phenomenon of anchorage defined by Barthes as a linguistic elements which serve as an 'anchor' (or constrain) to a specific readings of an image. Example can be inscription or the caption used for a photos.

#### Example:

The interpretation of the fresco of the south side wall in the church of Asinou given by the text "I, Nikephoros magistros, a pitiable supplicant, erected this church with devotion, in return for which I beg to find thee my protectress".

The reading of the painting "Landscape with the Fall of Icarus" by Bruegel.

#### Proprieties:

K36 anchors (was anchored by): E90 Symbolic Object K37 anchor to E36 Visual Item

K10 On the base of E89 Propositional Object

#### IC19 Recto

Subclass of: E19 Physical Feature

The front or face of a single sheet or the right-hand page of an open book. The feature is presents in object such as codex, books, pamphlets, documents, photographs and painting.

#### Example:

The recto of the drawing 57 E r "Busto di giovane donna di profile" by Raphael, preserved in the Department of Prints and Drawings, Uffizi.

The recto of the photograph of St. John the Baptist by Vicino da Ferrara

# Proprieties:

K6 has back (has front): IC20 Verso

K7 is recto of (has recto): E22 Man-Made Object

#### IC20 Verso

Subclass of: E19 Physical Feature

The back or underside of a single sheet of paper, or the left-hand page of an open book. The feature is presents in object such as codex, books, pamphlets, documents, photographs and painting.

#### Example:

The verso of the drawing 57 E v "Testa di donna di profile" by Anonymous XVI century, preserved in the Department of Prints and Drawings, Uffizi

The photographer's stamp in the verso of the photograph of St. John the Baptist by Vicino da Ferrara

#### Proprieties:

K6 has front (has back) IC19 Recto

K8 is verso of (has verso) E22 Man-Made Object

# **Properties**

# K1 Denotes (is denoted by)

Domain: IC1 Iconographical Atom

Range: E36 Visual Item

Subproperty: P65 show visual items

The property documents the assignment of an iconographical object to a specific physical man-made object

# K4 Is visual prototype of (has visual prototype)

Domain: IC9 Representation Range: IC9 Representation Subproperty: P67 refers to

The property documents the use of a specific prototypical example for an image. The nature of the relationships helps define a map of relationships between prototypical items used in the arts.

#### K6 has back (has front)

Domain: IC19 Recto Range: IC20 Verso

Subproperty: P46 is composed of

The property documents the presence of a Verso or a Recto, respectively in the back or in the front of an

object.

#### K7 is recto of (has recto)

Domain: IC19 Recto

Range: E22 Man-Made Object Subproperty: P46 is composed of

The property indicates the presence of a recto in the described object.

#### K8 is verso of (has verso)

Domain: IC20 Verso

Range: E22 Man-Made Object Subproperty: P56 bears feature

The property indicates the presence of a verso in the described object.

# K9 Assigned status to (has status assigned by)

Domain: IC12 Visual Recognition

Range: E18 Physical Thing

Subproperty: P140 assigned attribute to (was attributed by)

The property documents the assignment of status to a specific physical thing.

# **K10 On the base of (is basis for)**

Domain: E7 Activity

Range: E89 Propositional Object

Subproperty: P16 used specific object (was used for)

The property describes the source used for the status assignment.

# K11 Assigned (was assigned by)

Domain: IC12 Visual Recognition

Range: IC9 Representation

Subproperty: P141 assigned attribute to

The property indicates the status assigned during the status assignment event.

# K17 Has attribute (is attribute of)

Domain: IC9 Representation

Range: IC10 Attribute

Subproperty: P106 is composed of (forms part of)

This property associates an attribute with the iconographical object where it is depicted.

# K20 is composed of (forms part of)

Domain: IC9 Representation Range: IC9 Representation

Subproperty: P148 has component (is component of)

This property put in relation an iconographical object with a part of itself.

# K21 Depict (is depiction of attribute)

Domain: IC10 Attribute Range: E70 Thing

Subproperty: P138 Represents

This property indicates the entity referred by the iconographical attribute.

#### K22 has personification (is present in)

Domain: IC9 Representation Range: IC11 Personification Subproperty: P138 Represents

This property indicates the membership of a personification in an iconographical object.

# K23 Connote (is connotation of)

Domain: IC9 Representation Range: E90 Symbolic Object Subproperty: P138 Represents

This property indicates the connotation relationships, formalised by Barthes, between a conceptual entity

and an iconographical object.

# K24 Portray (is portrayed in)

Domain: IC9 Representation Range: IC16 Character

Subproperty: P138 Represents

This property put in relation an iconographical object with the portrayed character.

# K25 symbolize (is personification of)

Domain: IC11 Personification Range: E90 Symbolic Object Subproperty: P138 Represents

This property put in relation a conceptual object with its personification in a work of art.

# K26 Has source (is source of)

Domain: IC16 Character

Range: E39 Actor

Shortcut: E57 is based on

This property associates an instance of IC16 Character with an instance of E39 Actor that the character is

motivated by or is intended to represent.

# K27 Rest on (has layer)

Domain: IC8 Layer

Range: E18 Physical Thing

This property associates an instance of S8 Layer with the Physical Thing it rests on.

# K34 Illustrate (is illustrated by)

Domain: IC9 Representation Range: E73 Information Object Subproperty: P67 Refers to

This property associates an information object to a iconographical representation

#### K36 Anchors (was anchored by)

Domain: IC17 Anchorage Range: E90 Symbolic Object

Subproperty: P141 assigned (was assigned by)

The property documents the symbolic object which has been used in the anchoring activity.

#### K37 anchors to (is anchored by)

Domain: IC17 Anchorage Range: E36 Visual Item

Subproperty: P140 assigned attribute to (was attributed by)

The property documents the image used within the anchoring activity

# K38 observed color (has been observed in)

Domain: IC12 Visual Recognition

Range: IC5 Color

Subproperty: O9 observed property type

The property documents the type of color observed during a visual recognition activity