## Issue 410: Layout of the CIDOC CRM official version

*Examples Section –Laokoon:*

1. Order of diagrams in the Examples section of the CIDOC CRM definition:
**DECISION**: Diagrams of reasoning about spatial information & temporal information and a spacetime graph showing how things meet in spacetime (see below), are to precede the diagram of Johan-Joachim Winkelmann seeing the Roman copy of the statue of Laokoon inspired him to write the “History of the Art of the Antiquity”. SS & AK will cooperate to comment the graphics



Space-time Laokoon graph
The Examples section should comprise three sub-sections, namely: one for basic constructs (space and time), one showing the spacetime volumes of things coming together, and then the particular example of Winkelmann seeing Laokoon.

1. Regarding the diagram of “Winkelmann-sees-Laokoon”:
	1. It must be preceded by a small text giving a little context on the particular event, plus and subsequent events attested to have followed it.
	**HW**: MD is to provide the text
	2. It should be structured in a more obvious manner, starting from J.J. Winkelmann and following him in the course of its life (was born, saw the statue, it made an impression, then he wrote the “History…”, then he died). Information on the statue and the book are to be given in the context of Winkelmann’s activities, so they have to be placed near the relevant nodes.
	**HW**: TV is to check that the narrative of “Winkelmann saw Laokoon, which resulted in him writing history of ancient art” fits the diagram of events represented
	3. Instead of the generic P12 occurred in the presence of (was present at), use relevant subproperties thereof; the same applies for the classes used throughout the diagram. (see below).
	Use a predefined contour-style for arrows standing for properties connecting classes to underline the relations among properties (Pxx isA Pxx’).
	**HW**: MD, AK [?]
	4. It is proposed that the events found in the diagram and the entities participating in them are to be represented following the color-code of 3M.
	**HW**: GB, SS, AK to get the color-code right.
	5. Roman and Hellenistic are to be treated as instances of E4 Period –of the E12 Production of the Roman copy of Laokoon and the E12 Production of the original statue, respectively.

**HW**: AK, MD [?]

* 1. Just have a label on the time spans, don’t model them out and put no appellation instances. Just use quotes ???
	2. This example could be made into a demo using ResearchSpace /metaphacts. Instances of E53 Place and E21 Person are to be given as TGN and ULAN URLs and then connected to their appellations there. This doesn’t go to the CIDOC CRM official version –it should appear in the Tutorials section or FAQ on the CRM site.
	**HW**: ML & NC are to produce the .rdf for the Laokoon example.
1. **DECISION**: the sig decided to form a [**NEW ISSUE**](#_NEW_ISSUE:_Color-code) regarding the color-code used for representing CRM classes. **HW**: NC to make a demo of that using the color code of 3M.



*Compatibility statement:*

**DECISION**: Reading out the text once more and voting on the spot was considered counterproductive and time consuming. The members of the sig mentioned they preferred to be sent the document and then comment and initiate an e-vote on its content. E-vote message was sent to the crm-sig members about compatibility. See more in the appendix

*FOL Shortcuts:*

**DECISION**: The sig decided that the FOL representation of properties should also state full paths to shortcuts. These full paths should also include classes for intermediate nodes. Where an inverse property is used as an intermediate node in the full path, it should also appear in the FOL formulation. FOL representation of full paths will be listed under the “In First Order Logic” section in the definition of the property. No subsection specially designated for the representation of shortcuts in FOL is required.

## NEW ISSUE: Color-code used for representing CRM classes.

**DECISION**: In accordance with the decision reached on Issue 410 Layout of the official version of the CRM, a new issue has been formed on the [color code](file:///C%3A%5CUsers%5Cbekiari%5CDocuments%5CProjects%28on%20alioure%29%5CCIDOC-FRBR%5C2019-10-22%23Hrakleio-%2045th%5CMINUTES%5CET__45%20CRM-SIG%20MEETING%5CET_crm-sig%2022%20oct%202019%5CET_1_colorschememapping.xml) to represent CRM classes. A proposal has been made about making use the color code used in 3M.

The sig reviewed CEO’s HW for Issue 410, which involved editing the classes and properties of CIDOC CRM according to decisions made in the context of other issues, checking for inconsistencies and editing them. In what follows, affected classes and properties will be listed in their old form and their new form (i.e. post-editing in version 6.2.7).

### E4 Period

**DECISION**: The sig accepted the proposed changes on the definition of E4 Period as it appears on the definition of CIDOC CRM v 6.2.7.

The scope note changed from

Old (6.2.6)

Scope note: This class comprises sets of coherent phenomena or cultural manifestations occurring in time and space.

It is the social or physical coherence of these phenomena that identify an E4 Period and not the associated spatiotemporal extent. This extent is only the “ground” or space in an abstract physical sense that the actual process of growth, spread and retreat has covered. Consequently, different periods can overlap and coexist in time and space, such as when a nomadic culture exists in the same area and time as a sedentary culture. This also means that overlapping land use rights, common among first nations, amounts to overlapping periods.

Often, this class is used to describe prehistoric or historic periods such as the “Neolithic Period”, the “Ming Dynasty” or the “McCarthy Era”, but also geopolitical units and activities of settlements are regarded as special cases of E4 Period. However, there are no assumptions about the scale of the associated phenomena. In particular all events are seen as synthetic processes consisting of coherent phenomena. Therefore E4 Period is a superclass of E5 Event. For example, a modern clinical E67 Birth can be seen as both an atomic E5 Event and as an E4 Period that consists of multiple activities performed by multiple instances of E39 Actor.

As the actual extent of an E4 Period in spacetime we regard the trajectories of the participating physical things during their participation in an instance of E4 Period. This includes the open spaces via which these things have interacted and the spaces by which they had the potential to interact during that period or event in the way defined by the type of the respective period or event. Examples include the air in a meeting room transferring the voices of the participants. Since these phenomena are fuzzy, we assume the spatiotemporal extent to be contiguous, except for cases of phenomena spreading out over islands or other separated areas, including geopolitical units distributed over disconnected areas such as islands or colonies.

Whether the trajectories necessary for participants to travel between these areas are regarded as part of the spatiotemporal extent or not has to be decided in each case based on a concrete analysis, taking use of the sea for other purposes than travel, such as fishing, into consideration. One may also argue that the activities to govern disconnected areas imply travelling through spaces connecting them and that these areas hence are spatially connected in a way, but it appears counterintuitive to consider for instance travel routes in international waters as extensions of geopolitical units.

Consequently, an instance of E4 Period may occupy a number of disjoint spacetime volumes, however there must not be a discontinuity in the timespan covered by these spacetime volumes. This means that an instance of E4 Period must be contiguous in time. If it has ended in all areas, it has ended as a whole. However it may end in one area before another, such as in the Polynesian migration, and it continues as long as it is ongoing in at least one area.

We model E4 Period as a subclass of E2 Temporal Entity and of E92 Spacetime volume. The latter is intended as a phenomenal spacetime volume as defined in CRMgeo (Doerr and Hiebel 2013). By virtue of this multiple inheritance we can discuss the physical extent of an E4 Period without representing each instance of it together with an instance of its associated spacetime volume. This model combines two quite different kinds of substance: an instance of E4 Period is a phenomena while a spacetime volume is an aggregation of points in spacetime. However, the real spatiotemporal extent of an instance of E4 Period is regarded to be unique to it due to all its details and fuzziness; its identity and existence depends uniquely on the identity of the instance of E4 Period. Therefore this multiple inheritance is unambiguous and effective and furthermore corresponds to the intuitions of natural language.

There are two different conceptualisations of ‘artistic style’, defined either by physical features or by historical context. For example, “Impressionism” can be viewed as a period lasting from approximately 1870 to 1905 during which paintings with particular characteristics were produced by a group of artists that included (among others) Monet, Renoir, Pissarro, Sisley and Degas. Alternatively, it can be regarded as a style applicable to all paintings sharing the characteristics of the works produced by the Impressionist painters, regardless of historical context. The first interpretation is an instance of E4 Period, and the second defines morphological object types that fall under E55 Type.

A geopolitical unit as a specific case of an E4 Period is the set of activities and phenomena related to the claim of power, the consequences of belonging to a jurisdictional area and an administrative system that establishes a geopolitical unit. Examples from the modern period are countries or administrative areas of countries such as districts whose actions and structures define activities and phenomena in the area that they intend to govern. The borders of geopolitical units are often defined in contracts or treaties although they may deviate from the actual practice. The spatiotemporal properties of Geopolitical units can be modelled through the properties inherited from E92 Spacetime volume.

Another specific case of an E4 Period is the actual extent of the set of activities and phenomena as evidenced by their physical traces that define a settlement, such as the populated period of Nineveh..

Examples:

* Jurassic (Hallam, 1975)
* Populated Period of Nineveh
* Imperial Rome under Marcus Aurelius
* European Bronze Age (Harrison, c2004)
* Italian Renaissance (Macdonald, 1992)
* Thirty Years War (Lee, 1991)
* Sturm und Drang (Berkoff, 2013)
* Cubism (Cox, 2000)

In First Order Logic:

 E4(x) ⊃ E2(x)

E4(x) ⊃ E92(x)

Properties**:**

[P7](#_P7_took_place) took place at (witnessed): [E53](#_E53_Place) Place

[P8](#_P8_took_place) took place on or within (witnessed): [E18](#_E19_Physical_Object) Physical Thing

[P9](#_P9_consists_of_(forms part of)) consists of (forms part of): [E4](#_E4_Period) Period

New: the scope note reads.

Scope note: This class comprises sets of coherent phenomena or cultural manifestations occurring in time and space.

It is the social or physical coherence of these phenomena that identify an E4 Period and not the associated spatiotemporal extent. This extent is only the “ground” or space in an abstract physical sense that the actual process of growth, spread and retreat has covered. Consequently, different periods can overlap and coexist in time and space, such as when a nomadic culture exists in the same area and time as a sedentary culture. This also means that overlapping land use rights, common among first nations, amounts to overlapping periods.

Often, this class is used to describe prehistoric or historic periods such as the “Neolithic Period”, the “Ming Dynasty” or the “McCarthy Era”, but also geopolitical units and activities of settlements are regarded as special cases of E4 Period. However, there are no assumptions about the scale of the associated phenomena. In particular, all events are seen as synthetic processes consisting of coherent phenomena. Therefore, E4 Period is a superclass of E5 Event. For example, a modern clinical birth, an instance of E67 Birth, can be seen as both a single event, i.e., an instance of E5 Event, and as an extended period, i.e., an instance of E4 Period, that consists of multiple physical processes and complementary activities performed by multiple instances of E39 Actor.

As the actual extent of an instance of E4 Period in spacetime we regard the trajectories of the participating physical things during their participation in an instance of E4 Period. This includes the open spaces via which these things have interacted and the spaces by which they had the potential to interact during that period or event in the way defined by the type of the respective period or event. Examples include the air in a meeting room transferring the voices of the participants. Since these phenomena are fuzzy, we assume the spatiotemporal extent to be contiguous, except for cases of phenomena spreading out over islands or other separated areas, including geopolitical units distributed over disconnected areas such as islands or colonies.

Whether the trajectories necessary for participants to travel between these areas are regarded as part of the spatiotemporal extent or not has to be decided in each case based on a concrete analysis, taking use of the sea for other purposes than travel, such as fishing, into consideration. One may also argue that the activities to govern disconnected areas imply travelling through spaces connecting them and that these areas hence are spatially connected in a way, but it appears counterintuitive to consider for instance travel routes in international waters as extensions of geopolitical units.

Consequently, an instance of E4 Period may occupy a number of disjoint spacetime volumes, however there must not be a discontinuity in the timespan covered by these spacetime volumes. This means that an instance of E4 Period must be contiguous in time. If it has ended in all areas, it has ended as a whole. However it may end in one area before another, such as in the Polynesian migration, and it continues as long as it is ongoing in at least one area.

We model E4 Period as a subclass of E2 Temporal Entity and of E92 Spacetime Volume. The latter is intended as a phenomenal spacetime volume as defined in CIDOC CRMgeo (Doerr and Hiebel, 2013). By virtue of this multiple inheritance we can discuss the physical extent of an instance of E4 Period without representing each instance of it together with an instance of its associated spacetime volume. This model combines two quite different kinds of substance: an instance of E4 Period is a phenomena while an instance of E92 Spacetime Volume is an aggregation of points in spacetime. However, the real spatiotemporal extent of an instance of E4 Period is regarded to be unique to it due to all its details and fuzziness; its identity and existence depends uniquely on the identity of the instance of E4 Period. Therefore this multiple inheritance is unambiguous and effective and furthermore corresponds to the intuitions of natural language.

There are two different conceptualisations of ‘artistic style’, defined either by physical features or by historical context. For example, “Impressionism” can be viewed as a period lasting from approximately 1870 to 1905 during which paintings with particular characteristics were produced by a group of artists that included (among others) Monet, Renoir, Pissarro, Sisley and Degas. Alternatively, it can be regarded as a style applicable to all paintings sharing the characteristics of the works produced by the Impressionist painters, regardless of historical context. The first interpretation is an instance of E4 Period, and the second defines morphological object types that fall under E55 Type.

A geopolitical unit as a specific case of an instance of E4 Period is the set of activities and phenomena related to the claim of power, the consequences of belonging to a jurisdictional area and an administrative system that establishes a geopolitical unit. Examples from the modern period are countries or administrative areas of countries such as districts whose actions and structures define activities and phenomena in the area that they intend to govern. The borders of geopolitical units are often defined in contracts or treaties although they may deviate from the actual practice. The spatiotemporal properties of Geopolitical units can be modelled through the properties inherited from E92 Spacetime Volume.

Another specific case of an E4 Period is the actual extent of the set of activities and phenomena as evidenced by their physical traces that define a settlement, such as the populated period of Nineveh.

Examples:

* Jurassic (Hallam, 1975)
* Populated Period of Nineveh
* Imperial Rome under Marcus Aurelius
* European Bronze Age (Harrison, c2004)
* Italian Renaissance (Macdonald, 1992)
* Thirty Years War (Lee, 1991)
* Sturm und Drang (Berkoff, 2013)
* Cubism (Cox, 2000)

In First Order Logic:

E4(x) ⊃ E2(x)

E4(x) ⊃ E92(x)

Poperties**:**

[P7](#_P7_took_place) took place at (witnessed): [E53](#_E53_Place) Place

[P8](#_P8_took_place) took place on or within (witnessed): [E18](#_E19_Physical_Object) Physical Thing

[P9](#_P9_consists_of_(forms part of)) consists of (forms part of): [E4](#_E4_Period) Period

### E15 Identifier Assignment

**DECISION**: The sig accepted the definition of E15 Identifier Assignment as it appears on the definition of CIDOC CRM v 6.2.7 –i.e. erasing of the identifiers for the classes linked to E15 Identifier Assignment through properties from the examples, as these were considered misleading. Thus the scope note and the examples changed

**E15 Identifier Assignment**

#### From (6.2.6)

This class comprises activities that result in the allocation of an identifier to an instance of E1 CRM Entity. An E15 Identifier Assignment may include the creation of the identifier from multiple constituents, which themselves may be instances of E41 Appellation. The syntax and kinds of constituents to be used may be declared in a rule constituting an instance of E29 Design or Procedure.

Examples of such identifiers include Find Numbers, Inventory Numbers, uniform titles in the sense of librarianship and Digital Object Identifiers (DOI). Documenting the act of identifier assignment and deassignment is especially useful when objects change custody or the identification system of an organization is changed. In order to keep track of the identity of things in such cases, it is important to document by whom, when and for what purpose an identifier is assigned to an item.

The fact that an identifier is a preferred one for an organisation can be expressed by using the property *E1 CRM Entity. P48 has preferred identifier (is preferred identifier of): E42 Identifier*. It can better be expressed in a context independent form by assigning a suitable E55 Type, such as “preferred identifier assignment”, to the respective instance of E15 Identifier Assignment via the *P2 has type* property.

Examples:

* + - Replacement of the inventory number TA959a by GE34604 for a 17th century lament cloth at the Museum Benaki, Athens
		- Assigning the author-uniform title heading “Goethe, Johann Wolfgang von, 1749-1832. Faust. 1. Theil.” for a work (E28)
		- On June 1, 2001 assigning the personal name heading “Guillaume, de Machaut, ca. 1300-1377” (E42,E82) to Guillaume de Machaut (E21)

#### To :

Subclass of: [E13](#_E13_Attribute_Assignment) Attribute Assignment

Scope note: This class comprises activities that result in the allocation of an identifier to an instance of E1 CRM Entity. Instances of E15 Identifier Assignment may include the creation of the identifier from multiple constituents, which themselves may be instances of E41 Appellation. The syntax and kinds of constituents to be used may be declared in a rule constituting an instance of E29 Design or Procedure.

Examples of such identifiers include Find Numbers, Inventory Numbers, uniform titles in the sense of librarianship and Digital Object Identifiers (DOI). Documenting the act of identifier assignment and deassignment is especially useful when objects change custody or the identification system of an organization is changed. In order to keep track of the identity of things in such cases, it is important to document by whom, when and for what purpose an identifier is assigned to an item.

The fact that an identifier is a preferred one for an organisation can be expressed by using the property *E1 CRM Entity. P48 has preferred identifier (is preferred identifier of): E42 Identifier*. It can better be expressed in a context independent form by assigning a suitable E55 Type, such as “preferred identifier assignment”, to the respective instance of E15 Identifier Assignment via the *P2 has type* property.

Examples:

* + - Replacement of the inventory number TA959a by GE34604 for a 17th century lament cloth at the Museum Benaki, Athens
		- Assigning the author-uniform title heading “Goethe, Johann Wolfgang von, 1749-1832. Faust. 1. Theil.” for the respective work
		- On June 1, 2001 assigning the personal name heading “Guillaume, de Machaut, ca. 1300-1377” to Guillaume de Machaut

In First Order Logic:

E15(x) ⊃ E13(x)

Properties:

[P37](#_P37_assigned_(was_assigned by)) assigned (was assigned by): [E42](#_E42_Object_Identifier) Identifier

[P38](#_P38_deassigned_(was_deassigned by)) deassigned (was deassigned by): [E42](#_E42_Object_Identifier) Identifier

[P142](#_P142_used_constituent_(was used in)) used constituent (was used in): [E90](#_E90_Symbolic_Object) Symbolic Object

### E32 Authority Document

**DECISION**: the example “64. (Herber, 1994)” was deleted and the bibliographic reference for the Getty Art and Architecture Thesaurus needs be fixed. The examples changed

##### from (old)

**E32 Authority Document**

Examples:

* Webster's Dictionary
* 64. (Herbert, 1994)
* Getty Art and Architecture Thesaurus (Getty Trust, 1990) *??? Published on behalf of Paul Getty Trust*
* the CIDOC Conceptual Reference Model (Gergatsoulis, M. et al., 2010)

##### to (new)

Examples:

* Webster's Dictionary
* Getty Art and Architecture Thesaurus (Getty Trust, 1990)
* the CIDOC Conceptual Reference Model (Gergatsoulis, M. et al., 2010)

### E34 Inscription

Minor proposed editorial changes approved. Thus the scope note changed

#### from

Scope note: This class comprises recognisable, short texts attached to instances of E24 Physical Man-Made Thing.

The transcription of the text can be documented in a note by *P3 has note: E62 String*. The alphabet used can be documented by *P2 has type: E55 Type*. This class does not intend to describe the idiosyncratic characteristics of an individual physical embodiment of an inscription, but the underlying prototype. The physical embodiment is modelled in the CRM as E24 Physical Man-Made Thing.

The relationship of a physical copy of a book to the text it contains is modelled using*~~E84 Information Carrier~~. P128 carries (is carried by): E33 Linguistic Object.*

#### To:

Scope note: This class comprises recognisable, short texts attached to instances of E24 Physical Human-Made Thing.

The transcription of the text can be documented in a note by *P3 has note: E62 String*. The alphabet used can be documented by *P2 has type: E55 Type*. This class does not intend to describe the idiosyncratic characteristics of an individual physical embodiment of an inscription, but the underlying prototype. The physical embodiment is modelled in the CIDOC CRM as instances of E24 Physical Human-Made Thing.

The relationship of a physical copy of a book to the text it contains is modelled using *E18 Physical Thing. P128 carries (is carried by): E33 Linguistic Object.*

### E39 Actor

**DECISION:** The sig agreed to delete the \*\*second paragraph\*\* of the scope note. The scope note changed

##### from (old)

**E39 Actor**

Subclass of: [E77](#_E77_Persistent_Item) Persistent Item

Superclass of: [E21](#_E21_Person) Person

[E74](#_E74_Group) Group

Scope note: This class comprises people, either individually or in groups, who have the potential to perform intentional actions of kinds for which someone may be held responsible.

\*\*The CIDOC CRM does not attempt to model the inadvertent action of such actors. Individual people should be documented as instances of E21 Person, whereas groups should be documented as instances of E74 Group.\*\*

Examples:

* London and Continental Railways (E40)
* the Governor of the Bank of England in 1975 (E21)
* Sir Ian McKellan (E21) (Gibson, 1986)

In First Order Logic:

 E39(x) ⊃ E77(x)

Properties:

[P74](#_P74_has_current_or former residence) has current or former residence (is current or former residence of): [E53](#_E53_Place) Place

[P75](#_P75_possesses_(is_possessed by)) possesses (is possessed by): [E30](#_E30_Right) Right

[P76](#_P76_has_contact_point (provides acc) has contact point (provides access to): [E41](#_E51_Contact_Point) Appellation

##### to (new)

**E39 Actor**

Subclass of: [E77](#_E77_Persistent_Item) Persistent Item

Superclass of: [E21](#_E21_Person) Person

[E74](#_E74_Group) Group

Scope note: This class comprises people, either individually or in groups, who have the potential to perform intentional actions of kinds for which someone may be held responsible.

Examples:

* London and Continental Railways (E40)
* the Governor of the Bank of England in 1975 (E21)
* Sir Ian McKellan (E21) (Gibson, 1986)

In First Order Logic:

 E39(x) ⊃ E77(x)

Properties:

[P74](#_P74_has_current_or former residence) has current or former residence (is current or former residence of): [E53](#_E53_Place) Place

[P75](#_P75_possesses_(is_possessed by)) possesses (is possessed by): [E30](#_E30_Right) Right

[P76](#_P76_has_contact_point (provides acc) has contact point (provides access to): [E41](#_E51_Contact_Point) Appellation

### E53 Place

**DECISION**: The sig accepted the changes to the definition of E53 Place. The scope note changed

##### from (old)

**E53 Place**

Subclass of: [E1](#_E1_CRM_Entity) CRM Entity

Scope note: This class comprises extents in space, in particular on the surface of the earth, in the pure sense of physics: independent from temporal phenomena and matter.

The instances of E53 Place are usually determined by reference to the position of “immobile” objects such as buildings, cities, mountains, rivers, or dedicated geodetic marks. A Place can be determined by combining a frame of reference and a location with respect to this frame.

It is sometimes argued that instances of E53 Place are best identified by global coordinates or absolute reference systems. However, relative references are often more relevant in the context of cultural documentation and tend to be more precise. In particular, we are often interested in position in relation to large, mobile objects, such as ships. For example, the Place at which Nelson died is known with reference to a large mobile object – H.M.S Victory. A resolution of this Place in terms of absolute coordinates would require knowledge of the movements of the vessel and the precise time of death, either of which may be revised, and the result would lack historical and cultural relevance.

Any object can serve as a frame of reference for an instance of E53 Place determination. The model foresees the notion of a “section” of an instance of E19 Physical Object as a valid E53 Place determination.

Examples:

* the extent of the UK in the year 2003
* the position of the hallmark on the inside of my wedding ring
* the place referred to in the phrase: “Fish collected at three miles north of the confluence of the Arve and the Rhone”
* here -> <-

In First Order Logic:

E53(x) ⊃ E1(x)

Properties:

P89 falls within (contains): E53 Place

P121 overlaps with: E53 Place

P122 borders with: E53 Place

P157 is at rest relative to (provides reference space for): E18 Physical Thing

P168 place is defined by (defines place) : E94 Space Primitive

P171 at some place within : E94 Space Primitive

P172 contains : E94 Space Primitive

##### to (new)

**E53 Place**

Subclass of: [E1](#_E1_CRM_Entity) CRM Entity

Scope note: This class comprises extents in space, in particular on the surface of the earth, in the pure sense of physics: independent from temporal phenomena and matter.

The instances of E53 Place are usually determined by reference to the position of “immobile” objects such as buildings, cities, mountains, rivers, or dedicated geodetic marks. A Place can be determined by combining a frame of reference and a location with respect to this frame.

 It is sometimes argued that instances of E53 Place are best identified by global coordinates or absolute reference systems. However, relative references are often more relevant in the context of cultural documentation and tend to be more precise. In particular, we are often interested in position in relation to large, mobile objects, such as ships. For example, the Place at which Nelson died is known with reference to a large mobile object – H.M.S Victory. A resolution of this Place in terms of absolute coordinates would require knowledge of the movements of the vessel and the precise time of death, either of which may be revised, and the result would lack historical and cultural relevance.

Any instance of E18 Physical Thing can serve as a frame of reference for an instance of E53 Place. This may be documented using the property *P157 is at rest relative to (provides reference space for)*.

Examples:

* the extent of the UK in the year 2003
* the position of the hallmark on the inside of my wedding ring
* the place referred to in the phrase: “Fish collected at three miles north of the confluence of the Arve and the Rhone”
* here -> <-

In First Order Logic:

 E53(x) ⊃ E1(x)

Properties:

[P89](#_P89_falls_within) falls within (contains): [E53](#_E53_Place) Place

[P121](#_P121_overlaps_with) overlaps with: [E53](#_E53_Place) Place

[P122](#_P122_borders_with) borders with: [E53](#_E53_Place) Place

[P157](#_P157(Px2)_is_at) is at rest relative to (provides reference space for): [E18](#_E18_Physical_Thing) Physical Thing

[P168](#_P168_place_is) place is defined by (defines place) : [E94](#_E94_Space_Primitive) Space Primitive

[P171](#_P171_at_some) at some place within : [E94](#_E94_Space_Primitive) Space Primitive

[P172](#_P172_contains) contains : [E94](#_E94_Space_Primitive) Space Primitive

### E60 Number – Issue 435

**DECISION**: The sig reviewed MD’s rework of the scope note for E60 Number, which aimed at redefining the class without recourse to deprecated classes of the CRM (E50, E47). The new scope note was accepted. This resolves issue 435 as well

The definition for E60 Number changed

##### from (old)

**E60 Number**

Subclass of: [E59](#_E59_Primitive_Value) Primitive Value

Scope Note: This class comprises any encoding of computable (algebraic) values such as integers, real numbers, complex numbers, vectors, tensors etc., including intervals of these values to express limited precision.

Numbers are fundamentally distinct from identifiers in continua, such as instances of E50 date and E47 Spatial Coordinate, even though their encoding may be similar. Instances of E60 Number can be combined with each other in algebraic operations to yield other instances of E60 Number, e.g., 1+1=2. Identifiers in continua may be combined with numbers expressing distances to yield new identifiers, e.g., 1924-01-31 + 2 days = 1924-02-02. Cf. E54 Dimension

Examples:

* 5
* 3+2i
* 1.5e-04
* (0.5, - 0.7,88)

In First Order Logic:

 E60(x) ⊃ E59(x)

##### to (new)

**E60 Number**

Subclass of: [E59](#_E59_Primitive_Value) Primitive Value

Scope Note: This class comprises any encoding of computable (algebraic) values such as integers, real numbers, complex numbers, vectors, tensors etc., including intervals of these values to express limited precision.

Numbers are fundamentally distinct from numerically expressed identifiers in continua, which are instances of E41 Appellation, such as Gregorian dates or spatial coordinates, even though their encoding may be similar. Instances of E60 Number can be combined with each other in algebraic operations to yield other instances of E60 Number, e.g., 1+1=2. Identifiers in continua may be combined with numbers expressing distances to yield new identifiers, e.g., 1924-01-31 + 2 days = 1924-02-02. Cf. E54 Dimension

Examples:

* 5
* 3+2i
* 1.5e-04
* (0.5, - 0.7,88)

In First Order Logic:

 E60(x) ⊃ E59(x)

### E67 Birth

**DECISION**: The sig accepted the editorial work by MD and CEO. The scope note changed

##### from (old)

**E67 Birth**

Subclass of: [E63](#_E63_Beginning_of) Beginning of Existence

Scope note: This class comprises the births of human beings. E67 Birth is a biological event focussing on the context of people coming into life. (E63 Beginning of Existence comprises the coming into life of any living beings).

Twins, triplets etc. are brought into life by the same instance of E67 Birth. The introduction of E67 Birth as a documentation element allows the description of a range of family relationships in a simple model. Suitable extensions may describe more details and the complexity of motherhood with the intervention of modern medicine. In this model, the biological father is not seen as a necessary participant in the E67 Birth event.

Examples:

* the birth of Alexander the Great (Stoneman, 2004)

In First Order Logic:

 E67(x) ⊃ E63(x)

Properties:

[P96](#_P96_by_mother_(gave birth)) by mother (gave birth): [E21](#_E21_Person) Person

[P97](#_P97_from_father_(was father for)) from father (was father for): [E21](#_E21_Person) Person

[P98](#_P98_brought_into_life (was born)) brought into life (was born): [E21](#_E21_Person) Person

##### to (new)

**E67 Birth**

Subclass of: [E63](#_E63_Beginning_of) Beginning of Existence

Scope note: This class comprises the births of human beings. E67 Birth is a biological event focussing on the context of people coming into life. (E63 Beginning of Existence comprises the coming into life of any living being).

Twins, triplets etc. are typically brought into life by the same instance of E67 Birth. The introduction of E67 Birth as a documentation element allows the description of a range of family relationships in a simple model. Suitable extensions may describe more details and the complexity of motherhood with the intervention of modern medicine. In this model, the biological father is not seen as a necessary participant in the birth.

Examples:

* the birth of Alexander the Great (Stoneman, 2004)

In First Order Logic:

 E67(x) ⊃ E63(x)

Properties:

[P96](#_P96_by_mother_(gave birth)) by mother (gave birth): [E21](#_E21_Person) Person

[P97](#_P97_from_father_(was father for)) from father (was father for): [E21](#_E21_Person) Person

[P98](#_P98_brought_into_life (was born)) brought into life (was born): [E21](#_E21_Person) Person

### E69 Death

Minor editorial changes proposed by CEO accepted. The scope note changed

#### From

Scope note: This class comprises the deaths of human beings.

If a person is *killed*, their death should be instantiated as E69 Death and as E7 Activity. The death or perishing of other living beings should be documented using E64 End of Existence.

Examples:

#### To:

Scope note: This class comprises the deaths of human beings.

If a person is *killed*, the death should be documented as an instance of both E69 Death and E7 Activity. The death or perishing of other living beings should be documented as instances of E64 End of Existence

### E70 Thing

**DECISION**: The sig accepted the editorial changes on the examples section by MD and his proposal to cite the source of the example in the list of bibliographic references used in the CIDOC-CRM.

The full reference reads: Reinhard Liess: *Der Riss A1 der Straßburger Münsterfassade im Kontinuum der Entwürfe Magister Erwins*. In: *Kunsthistorisches Jahrbuch Graz*, 1985, Bd. 21 S. 47–121.

The example changed

##### from (old)

*
* the plan of the Straßburger Münster (French: *Cathédrale Notre-Dame de Strasbourg*) (E29)

##### to (new)

*
* the Riss A1 plan of the Straßburger Münster (French: *Cathédrale Notre-Dame de Strasbourg*) (E29) (Liess, R., 1985)

the following reference has been added to the References section

Liess Reinhard: *Der Riss A1 der Straßburger Münsterfassade im Kontinuum der Entwürfe Magister Erwins*. In: *Kunsthistorisches Jahrbuch Graz* 21, 1985, S. 47–121, Austria.

### E74 Group

**DECISION**: The sig reviewed the changes proposed by MD & CEO and accepted them:

* The examples from (deprecated) E40 Legal Body were transferred to E74 Group.
* A citation for the Exxon-Mobil example is to be added in the bibliographical references list. The reference reads: ‘*Exxon* Mobil Corp’, *Mergent's dividend achievers*, vol. 3, no. 3, 2006, pp. 97-97.

The scope note for E74 Group changed

##### from (old)

**E74 Group**

Subclass of: [E39](#_E39_Actor) Actor

Superclass of:

Scope note: This class comprises any gatherings or organizations of E93 Actors that act collectively or in a similar way due to any form of unifying relationship. In the wider sense this class also comprises official positions which used to be regarded in certain contexts as one actor, independent of the current holder of the office, such as the president of a country. In such cases, it may happen that the Group never had more than one member. A joint pseudonym (i.e., a name that seems indicative of an individual but that is actually used as a persona by two or more people) is a particular case of E74 Group.

A gathering of people becomes an instance of E74 Group when it exhibits organizational characteristics usually typified by a set of ideas or beliefs held in common, or actions performed together. These might be communication, creating some common artifact, a common purpose such as study, worship, business, sports, etc. Nationality can be modelled as membership in an instance of E74 Group (cf. HumanML markup). Married couples and other concepts of family are regarded as particular examples of E74 Group.

Examples:

* the impressionists (Wilson, 1983)
* the Navajo (Correll, 1972)
* the Greeks (Williams, 1993)
* the peace protestors in New York City on February 15 2003
* Exxon-Mobil (‘*Exxon* Mobil Corp’, *Mergent's dividend achievers*, vol. 3, no. 3, 2006, pp. 97-97)
* King Solomon and his wives (Thieberger, 1947)
* The President of the Swiss Confederation
* Nicolas Bourbaki (Aczel, 2007)
* Betty Crocker (Crocker, 2012)
* Ellery Queen (Queen, 1964)
* Greenpeace
* Paveprime Ltd
* the National Museum of Denmark

In First Order Logic:

 E74(x) ⊃ E39(x)

Properties:

[P107](#_P107_has_current_or former member () has current or former member (is current or former member of): [E39](#_E39_Actor) Actor

 (P107.1 *kind of member*: [E55](#_E55_Type) Type)

##### to (new)

**E74 Group**

Subclass of: [E39](#_E39_Actor) Actor

Superclass of:

Scope note: This class comprises any gatherings or organizations of human individuals or groups that act collectively or in a similar way due to any form of unifying relationship. In the wider sense this class also comprises official positions which used to be regarded in certain contexts as one actor, independent of the current holder of the office, such as the president of a country. In such cases, it may happen that the group never had more than one member. A joint pseudonym (i.e., a name that seems indicative of an individual but that is actually used as a persona by two or more people) is a particular case of E74 Group.

A gathering of people becomes an instance of E74 Group when it exhibits organizational characteristics usually typified by a set of ideas or beliefs held in common, or actions performed together. These might be communication, creating some common artifact, a common purpose such as study, worship, business, sports, etc. Nationality can be modelled as membership in an instance of E74 Group (cf. HumanML markup). Married couples and other concepts of family are regarded as particular examples of E74 Group.

Examples:

* the impressionists (Wilson, 1983)
* the Navajo (Correll, 1972)
* the Greeks (Williams, 1993)
* the peace protestors in New York City on February 15 2003
* Exxon-Mobil (‘*Exxon* Mobil Corp’, *Mergent's dividend achievers*, vol. 3, no. 3, 2006, pp. 97-97)
* King Solomon and his wives (Thieberger, 1947)
* The President of the Swiss Confederation
* Nicolas Bourbaki (Aczel, 2007)
* Betty Crocker (Crocker, 2012)
* Ellery Queen (Wheat, 2005)
* Greenpeace
* Paveprime Ltd
* the National Museum of Denmark

In First Order Logic:

 E74(x) ⊃ E39(x)

Properties:

P107 has current or former member (is current or former member of): [E39](#_E39_Actor) Actor

 (P107.1 *kind of member*: [E55](#_E55_Type) Type)

### E77 Persistent Item –issue 433

The sig discussed with the proposal by MD to revise the scope note of E77 Persistent Item and about what is the identity criteria of E77? The issue is pending.

Relevant discussions are to take place in the context of Issue 433 (Scope note of E77 Persistent Item).

### E81 Transformation

**DECISION**: The sig revised the scope note of E81 Transformation taking into account MD’s comments. The scope note changed

##### from (old)

**E81 Transformation**

Subclass of: [E63](#_E63_Beginning_of_Existence) Beginning of Existence

[E64](#_E64_End_of_Existence) End of Existence

Scope note: This class comprises the events that result in the simultaneous destruction of one or more than one instance of E18 Physical Thing and the creation of one or more than one instance of E18 Physical Thing that preserves recognizable substance and structure from the first one(s) but has fundamentally different nature or identity.

Although the old and the new instances of E18 Physical Thing are treated as discrete entities having separate, unique identities, they are causally connected through an instance of E81 Transformation. The destruction of the old one(s) directly causes the creation of the new one(s) using or preserving some relevant substance structure. Instances of E81 Transformation are therefore distinct from re-classifications (documented as instances of E17 Type Assignment) or modifications (documented as instances of E11 Modification) of objects that do not fundamentally change their nature or identity. Characteristic cases are reconstructions and repurposing of historical buildings or ruins, fires leaving buildings in ruins, taxidermy of specimens in natural history.

Examples:

* the death and mummification of Tut-Ankh-Amun (transformation of Tut-Ankh-Amun from a living person to a mummy) (E69,E81,E7)

In First Order Logic:

 E81(x) ⊃ E63(x)

 E81(x) ⊃ E64(x)

Properties:

[P123](#_P123_resulted_in_(resulted from)) resulted in (resulted from): E18 Physical Thing

[P124](#_P124_transformed_(was_transformed b) transformed (was transformed by): [E18](#_E77_Persistent_Item) Physical Thing

##### to (new)

**E81 Transformation**

Subclass of: [E63](#_E63_Beginning_of_Existence) Beginning of Existence

[E64](#_E64_End_of_Existence) End of Existence

Scope note: This class comprises the events that result in the simultaneous destruction of one or more than one instance of E18 Physical Thing and the creation of one or more than one instance of E18 Physical Thing that preserves recognizable substance and structure from the first one(s) but has fundamentally different nature or identity.

Although the old and the new instances of E18 Physical Thing are treated as discrete entities having separate, unique identities, they are causally connected through an instance of E81 Transformation. The creation of the new instances of E18 Physical Thing directly causes the destruction of the old instances of E18 Physical Thing using or preserving some relevant substance and structure. Instances of E81 Transformation are therefore distinct from re-classifications (documented as instances of E17 Type Assignment) or modifications (documented as instances of E11 Modification) of objects that do not fundamentally change their nature or identity. Characteristic cases are reconstructions and repurposing of historical buildings or ruins, fires leaving buildings in ruins, taxidermy of specimens in natural history.

Examples:

* the death and mummification of Tut-Ankh-Amun (transformation of Tut-Ankh-Amun from a living person to a mummy) (E69,E81,E7)

In First Order Logic:

 E81(x) ⊃ E63(x)

 E81(x) ⊃ E64(x)

Properties:

[P123](#_P123_resulted_in_(resulted from)) resulted in (resulted from): E18 Physical Thing

[P124](#_P124_transformed_(was_transformed b) transformed (was transformed by): [E18](#_E77_Persistent_Item) Physical Thing

### E83 Type Creation

minor typos accepted

### E92 Spacetime Volume

**DECISION**: The scope note was edited according to the CEO’s note. The scope note changed

##### from (old)

**E92 Spacetime Volume**

Subclass of: [E1](#_E1_CRM_Entity) CRM Entity

Superclass of: [E4](#_E4_Period) Period

 [E18](#_E18_Physical_Thing) Physical Thing

[E93](#_E93_Presence) Presence

Scope note: This class comprises 4 dimensional point sets (volumes) in physical spacetime (regardless their true geometric forms. They may derive their identity from being the extent of a material phenomenon or from being the interpretation of an expression defining an extent in spacetime. Intersections of instances of E92 Spacetime Volume, E53 Place and E52 Timespan are also regarded as instances of E92 Spacetime Volume. An instance of E92 Spacetime Volume is either contiguous or composed of a finite number of contiguous subsets. Its boundaries may be fuzzy due to the properties of the phenomena it derives from or due to the limited precision up to which defining expression can be identified with a real extent in spacetime. The duration of existence of an instance of E90 Spacetime Volume is trivially its projection on time.

Examples:

* the extent in space and time of the Event of Caesar’s murder
* where and when the carbon 14 dating of the "Schoeninger Speer II" in 1996 took place
* the spatio-temporal trajectory of the H.M.S. Victory from its building to its actual location
* the extent in space and time defined by a polygon approximating the Danube river flood in Austria between 6th and 9th of August 2002

In First Order Logic:

 E92(x) ⊃ E1(x)

Properties:

[P10](#_P10_falls_within_(contains)) falls within (contains): [E92](#_E91_Co-Reference_Assignment) Spacetime Volume

[P132](#_P132_overlaps_with) spatiotemporally overlaps with: [E92](#_E91_Co-Reference_Assignment) Spacetime Volume

[P133](#_P133_is_separated_from) spatiotemporally separated from: [E92](#_E91_Co-Reference_Assignment) Spacetime Volume

[P160](#_P160_(Px5)_) has temporal projection(is temporal projection of): [E52](#_E52_Time-Span) Time-Span

[P161](#_P161_(Px6)_) has spatial projection (is spatial projection of): [E53](#_E53_Place) Place

##### to (new)

**E92 Spacetime Volume**

Subclass of: [E1](#_E1_CRM_Entity) CRM Entity

Superclass of: [E4](#_E4_Period) Period

[E93](#_E93_Presence) Presence

Scope note: This class comprises 4 dimensional point sets (volumes) in physical spacetime (in contrast to mathematical models of it) regardless their true geometric forms. They may derive their identity from being the extent of a material phenomenon or from being the interpretation of an expression defining an extent in spacetime. Intersections of instances of E92 Spacetime Volume, E53 Place and E52 Timespan are also regarded as instances of E92 Spacetime Volume. An instance of E92 Spacetime Volume is either contiguous or composed of a finite number of contiguous subsets. Its boundaries may be fuzzy due to the properties of the phenomena it derives from or due to the limited precision up to which defining expression can be identified with a real extent in spacetime. The duration of existence of an instance of E90 Spacetime Volume is its projection on time.

Examples:

* the extent in space and time of the Event of Caesar’s murder
* where and when the carbon 14 dating of the "Schoeninger Speer II" in 1996 took place
* the spatio-temporal trajectory of the H.M.S. Victory from its building to its actual location
* the extent in space and time defined by a polygon approximating the Danube river flood in Austria between 6th and 9th of August 2002

In First Order Logic:

 E92(x) ⊃ E1(x)

Properties:

[P10](#_P10_falls_within_(contains)) falls within (contains): [E92](#_E91_Co-Reference_Assignment) Spacetime Volume

[P132](#_P132_overlaps_with) spatiotemporally overlaps with: [E92](#_E91_Co-Reference_Assignment) Spacetime Volume

[P133](#_P133_is_separated_from) spatiotemporally separated from: [E92](#_E91_Co-Reference_Assignment) Spacetime Volume

[P160](#_P160_(Px5)_) has temporal projection(is temporal projection of): [E52](#_E52_Time-Span) Time-Span

[P161](#_P161_(Px6)_) has spatial projection (is spatial projection of): [E53](#_E53_Place) Place

### E93 Presence

**DECISION**: The sig accepted the editorial changes proposed by CEO. The scope note changed

##### from (old)

**E93 Presence**

Subclass of: [E92](#_E92_Spacetime_Volume) Spacetime Volume

Scope note: This class comprises instances of E92 Spacetime Volume, whose arbitrary temporal extent has been chosen in order to determine the spatial extent of a phenomenon over the chosen time-span. Respective phenomena may, for instance, be historical events or periods, but can also be physical things seen in their diachronic existence and extent. In other words, instances of this class fix a slice of E92 Spacetime Volume in time.

The temporal extent is predetermined by the researcher so as to focus the investigation particularly on finding the spatial extent of the phenomenon by testing for its characteristic features. There are at least two basic directions such investigations might take. The investigation may wish to determine where something was during some time or it may wish to reconstruct the total passage of a phenomenon’s Spacetime Volume through an examination of discrete presences. Observation and measurement of features indicating the presence or absence of a phenomenon in some space allows for the progressive approximation of spatial extents through argumentation typically based on inclusion, exclusion and various overlaps.

In First Order Logic:

 E93(x) ⊃ E92(x)

Properties:

[P164](#_P164_(Px9)_is) during (was time-span of): [E52](#_E52_Time-Span) Time Span

[P166](#_P166_was_a) was a presence of (had presence): [E92](#_E91_Co-Reference_Assignment) Space Time Volume

[P167](#_P167_was_at) at (was place of): [E53](#_E53_Place) Place

##### to (new)

**E93 Presence**

Subclass of: [E92](#_E92_Spacetime_Volume) Spacetime Volume

Scope note: This class comprises instances of E92 Spacetime Volume, whose temporal extent has been chosen in order to determine the spatial extent of a phenomenon over the chosen time-span. Respective phenomena may, for instance, be historical events or periods, but can also be the diachronic extent and existence of physical things. In other words, instances of this class fix a slice of another instance of E92 Spacetime Volume in time.

The temporal extent of an instance of E93 Presence typically is predetermined by the researcher so as to focus the investigation particularly on finding the spatial extent of the phenomenon by testing for its characteristic features. There are at least two basic directions such investigations might take. The investigation may wish to determine where something was during some time or it may wish to reconstruct the total passage of a phenomenon’s spacetime volume through an examination of discrete presences. Observation and measurement of features indicating the presence or absence of a phenomenon in some space allows for the progressive approximation of spatial extents through argumentation typically based on inclusion, exclusion and various overlaps.

In First Order Logic:

 E93(x) ⊃ E92(x)

Properties:

[P164](#_P164_(Px9)_is) during (was time-span of): [E52](#_E52_Time-Span) Time Span

[P166](#_P166_was_a) was a presence of (had presence): [E92](#_E91_Co-Reference_Assignment) Space Time Volume

[P167](#_P167_was_at) at (was place of): [E53](#_E53_Place) Place

### E94 Space Primitive

**DECISION**: The sig made changes during the meeting and it is decided to be put up for an email vote the acceptance of these changes.

The scope note changed

##### from (old)

**E94 Space Primitive**

Subclass of: [E59](#_E59_Primitive_Value) Primitive Value

Scope Note: This class comprises instances of E59 Primitive Value for space that should be implemented with appropriate validation, precision and references to spatial coordinate systems to express geometries on or relative to Earth, or on any other stable constellations of matter, relevant to cultural and scientific documentation.

An E94 Space Primitive defines an E53 Place in the sense of a declarative place as elaborated in CRMgeo (Doerr and Hiebel 2013), which means that the identity of the place is derived from its geometric definition. This declarative place may allow for the application of all E53 Place properties to relate phenomenal places to their approximations expressed with geometries.

Instances of E94 Space Primitive provide the ability to link CIDOC CRM encoded data to the kinds of geometries used in maps or Geoinfromation systems. They may be used for visualization od the instances of E53 Place they define, in their geographic context and for computing topological relations between places based on these geometries.

Note that it is possible for a place to be defined by phenomena causal to it, such as a settlement or a riverbed, or other forms of identification rather by an instance of E94 Space Primitive. Any geometric approximation of such a place by an instance of E94 Space Primitive constitutes an instance of E53 Place in its own right. E94 Space Primitive is not further elaborated upon within this model. Compatibility with OGC standards is considered good practice.

Examples:

* Coordinate Information in GML like <gml:Point gml:id="p21" srsName="http://www.opengis.net/def/crs/EPSG/0/4326"> <gml:coordinates>45.67, 88.56</gml:coordinates> </gml:Point>
* Coordinate Information in lat, long 48,2 13,3
* Well Known Text like POLYGON ((30 10, 40 40, 20 40, 10 20, 30 10))

In First Order Logic:

 E94(x) ⊃ E59(x)

Properties:

##### to (new)

**E94 Space Primitive**

Subclass of: [E59](#_E59_Primitive_Value) Primitive Value

Scope Note: This class comprises instances of E59 Primitive Value for space that should be implemented with appropriate validation, precision and references to spatial coordinate systems to express geometries on or relative to Earth, or on any other stable constellations of matter, relevant to cultural and scientific documentation.

An instance of E94 Space Primitive defines an instance of E53 Place in the sense of a declarative place as elaborated in CRMgeo (Doerr and Hiebel 2013), which means that the identity of the place is derived from its geometric definition. Such a declarative place may allow for the approximation of instances of E53 Place defined by the actual extent of some phenomenon, such as a settlement or a riverbed, or other forms of identification rather than by an instance of E94 Space Primitive. Note that using an instance of E94 Space Primitive for approximating the actual extent of some place always defines a (declarative) instance of E53 Place in its own right.

Definitions of instances of E53 Place using different spatial reference systems are always definitions of different instances of E53 Place.

Instances of E94 Space Primitive provide the ability to link CIDOC CRM encoded data to the kinds of geometries used in maps or Geoinformation systems. They may be used for visualization of the instances of E53 Place they define, in their geographic context and for computing topological relations between places based on these geometries. E94 Space Primitive is not further elaborated upon within this model. It is considered good practice to maintain compatibility with OGC standards.

Examples:

* Coordinate Information in GML like <gml:Point gml:id="p21" srsName="http://www.opengis.net/def/crs/EPSG/0/4326"> <gml:coordinates>45.67, 88.56</gml:coordinates> </gml:Point>
* Coordinate Information in lat, long 48,2 13,3
* Well Known Text like POLYGON ((30 10, 40 40, 20 40, 10 20, 30 10))

In First Order Logic:

 E94(x) ⊃ E59(x)

Properties:

### P2 has type (is type of)

**DECISION**: The scope note was edited according to the proposal by MD & CEO –i.e. to substitute the sentence on refining CIDOC CRM concepts by E55 Type by a reference to the introductory section on Types. The [new scope](#_New_scope_note) note is to be put up for an email vote.

##### Old scope note

**P2 has type (is type of)**

Domain: [E1](#_E1_CRM_Entity) CRM Entity

Range: [E55](#_E55_Type) Type

Superproperty of:[E1](#_E1_CRM_Entity) CRM Entity.[P137](#_P137_is_exemplified_by (exemplifies) exemplifies (is exemplified by):E55 Type

Quantification: many to many (0,n:0,n)

Scope note: This property allows sub typing of CIDOC CRM entities - a form of specialisation – through the use of a terminological hierarchy, or thesaurus.

The CIDOC CRM is intended to focus on the high-level entities and relationships needed to describe data structures. Consequently, it does not specialise entities any further than is required for this immediate purpose. However, entities in the isA hierarchy of the CIDOC CRM may by specialised into any number of sub entities, which can be defined in the E55 Type hierarchy. E41 Appellation, for example, may be specialised into “e-mail address”, “telephone number”, “post office box”, “URL” etc. none of which figures explicitly in the CIDOC CRM hierarchy. Subtyping obviously requires consistency between the meaning of the terms assigned and the more general intent of the CIDOC-CRM entity in question.

Examples:

 “enquiries@cidoc-crm.org” (E41) *has type* e-mail address (E55)

In First Order Logic:

 P2(x,y) ⊃ E1(x)

 P2(x,y) ⊃ E55(y)

##### New scope note

**P2 has type (is type of)**

Domain: [E1](#_E1_CRM_Entity) CRM Entity

Range: [E55](#_E55_Type) Type

Superproperty of:[E1](#_E1_CRM_Entity) CRM Entity.[P137](#_P137_is_exemplified_by (exemplifies) exemplifies (is exemplified by):E55 Type

Quantification: many to many (0,n:0,n)

Scope note: This property allows sub typing of CIDOC CRM entities - a form of specialisation – through the use of a terminological hierarchy, or thesaurus.

The CIDOC CRM is intended to focus on the high-level entities and relationships needed to describe data structures. Consequently, it does not specialise entities any further than is required for this immediate purpose. However, entities in the isA hierarchy of the CIDOC CRM may by specialised into any number of sub entities, which can be defined in the E55 Type hierarchy. E41 Appellation, for example, may be specialised into “e-mail address”, “telephone number”, “post office box”, “URL” etc. none of which figures explicitly in the CIDOC CRM hierarchy.

A comprehensive explanation about refining CIDOC CRM concepts by E55 Type is given in the section “About Types” in the section on “Specific Modelling Constructs” of this document.

Examples:

 “enquiries@cidoc-crm.org” (E41) *has type* e-mail address (E55)

In First Order Logic:

 P2(x,y) ⊃ E1(x)

 P2(x,y) ⊃ E55(y)

### P4 has time-span (is time-span of)

**DECISION**: The sig reworked the scope note for P4 has time-span (is time-span of) on the basis that it expressed epistemological notions rather than defining what a time-span is.

In a similar vein, it was decided that a [new issue](#_[NEW_ISSUE]:_Shared) should start to explain that shared time-spans can only be declarative ones –not phenomenal.

The scope note for P4 has time-span (is time-span of) changed

##### from (old)

**P4 has time-span (is time-span of)**

Domain: [E2](#_E2_Temporal_Entity) Temporal Entity

Range: [E52](#_E52_Time-Span) Time-Span

Quantification: many to one, necessary, dependent (1,1:1,n)

Scope note: This property describes the temporal confinement of an instance of an E2 Temporal Entity.

The related instance of E52 Time-Span is understood as the real Time-Span during which the phenomena were active, which make up the temporal entity instance. It does not convey any other meaning than a positioning on the “time-line” of chronology. The Time-Span in turn is approximated by a set of dates (instances of E61 Time Primitive). A temporal entity can have in reality only one Time-Span, but there may exist alternative opinions about it, which we would express b assigning multiple Time-Spans. Related temporal entities may share a E52 Time-Span. Instances of E52 Time-Span may have completely unknown dates but other descriptions by which we can infer knowledge.

Examples:

* the Yalta Conference (E7) *has time-span* Yalta Conference time-span (E52)

In First Order Logic:

 P4(x,y) ⊃ E2(x)

 P4(x,y) ⊃ E52(y)

##### to (new, working definition)

**P4 has time-span (is time-span of)**

Domain: [E2](#_E2_Temporal_Entity) Temporal Entity

Range: [E52](#_E52_Time-Span) Time-Span

Quantification: many to one, necessary, dependent (1,1:1,n)

Scope note: This property describes the temporal confinement of an instance of an E2 Temporal Entity.

The related instance of E52 Time-Span is understood as the real Time-Span during which the phenomena were active, which make up the temporal entity instance. It does not convey any other meaning than a positioning on the “time-line” of chronology. The Time-Span in turn is approximated by a set of dates (instances of E61 Time Primitive). Related temporal entities may share an instance of E52 Time-Span. Instances of E52 Time-Span may have completely unknown dates but other descriptions by which we can infer knowledge.

Examples:

* the Yalta Conference (E7) *has time-span* Yalta Conference time-span (E52)

In First Order Logic:

 P4(x,y) ⊃ E2(x)

 P4(x,y) ⊃ E52(y)

### P9 consists of (forms part of)

**DECISION**: The sig accepted MD’s proposal to erase P132 spatiotemporally overlaps with [D:E92 Spacetime Volume, R: E92 Spacetime Volume] from the list of superproperties of P9 consists of (forms part of).

The subproperty and FOL sections of P9 consists of (forms part of) changed

##### from (old)

**P9 consists of (forms part of)**

Domain: [E4](#_E4_Period) Period

Range: [E4](#_E4_Period) Period

Subproperty of: [E92](#_E91_Co-Reference_Assignment) Spacetime Volume. P132 spatiotemporally overlaps with: [E92](#_E91_Co-Reference_Assignment) Spacetime Volume

 [E92](#_E91_Co-Reference_Assignment) Spacetime Volume. P10i contains (falls within):[E92](#_E91_Co-Reference_Assignment) Spacetime Volume

….

In First Order Logic:

 P9(x,y) ⊃ E4(x)

 P9(x,y) ⊃ E4(y)

 P9(x,y) ⊃ P10(y,x)

 P10(x,y) ⊃ P132(x,y)

##### to (new)

**P9 consists of (forms part of)**

Domain: [E4](#_E4_Period) Period

Range: [E4](#_E4_Period) Period

Subproperty of: [E92](#_E91_Co-Reference_Assignment) Spacetime Volume. P10i contains (falls within):[E92](#_E91_Co-Reference_Assignment) Spacetime Volume

…

In First Order Logic:

 P9(x,y) ⊃ E4(x)

 P9(x,y) ⊃ E4(y)

 P9(x,y) ⊃ P10(y,x)

### P11 had participant (participated in)

**DECISION**: The sig did some editorial work on the scope note of P11 had participant (participated in). The scope note changed

##### from (old)

**P11 had participant (participated in)**

Domain: E5 Event

Range: E39 Actor

Subproperty of: E5 Event. P12 occurred in the presence of (was present at): E77 Persistent Item

Superproperty of:

* E7 Activity. P14 carried out by (performed): E39 Actor
* E67 Birth. P96 by mother (gave birth): E21 Person
* E68 Dissolution. P99 dissolved (was dissolved by): E74 Group
* E85 Joining.P143 joined (was joined by): E39 Actor
* E85 Joining.P144 joined with (gained member by): E74 Group
* E86 Leaving.P145 separated (left by):E39 Actor
* E86 Leaving.P146 separated from (lost member by):E74 Group
* P151 was formed from: E74 Group

 Quantification: many to many (0,n:0,n)

Scope note: This property describes the active or passive participation of instances of E39 Actors in an instance of E5 Event.

It documents known events in which an instance of E39 Actor has participated during the course of that actor’s life or history. The E53 Place and E52 Time-Span where and when these events happened provide us with constraints about the presence of the related E39 Actor in the past. Collective actors, i.e., instances of E74 Group, may physically participate in events via their representing E21 Persons only. The participation of multiple actors in an event is most likely an indication of their acquaintance and interaction.

The property implies that the Actor was involved in the event but does not imply any causal relationship. For instance, someone having been portrayed can be said to have participated in the creation of the portrait.

Examples:

* Napoleon (E21) participated in The Battle of Waterloo (E7)
* Maria (E21) participated in Photographing of Maria (E7)

 In First Order Logic:

P11(x,y) ⊃ E5(x)
P11(x,y) ⊃ E39(y)
P11(x,y) ⊃ P12(x,y)

#### to (new)

**P11 had participant (participated in)**

Domain: E5 Event

Range: E39 Actor

Subproperty of: E5 Event. P12 occurred in the presence of (was present at): E77 Persistent Item

Superproperty of: E7 Activity. P14 carried out by (performed): E39 Actor

 E67 Birth. P96 by mother (gave birth): E21 Person

 E68 Dissolution. P99 dissolved (was dissolved by): E74 Group

E85 Joining.P143 joined (was joined by): E39 Actor

E85 Joining.P144 joined with (gained member by): E74 Group

E86 Leaving.P145 separated (left by):E39 Actor

E86 Leaving.P146 separated from (lost member by):E74 Group

[E66](#_E66_Formation) Formation .P151 was formed from: E74 Group

Quantification: many to many (0,n:0,n)

Scope note: This property describes the active or passive participation of instances of E39 Actors in an instance of E5 Event.

It documents known events in which an instance of E39 Actor has participated during the course of that actor’s life or history. The instances of E53 Place and E52 Time-Span where and when these events happened provide us with constraints about the presence of the related instances of E39 Actor in the past. Collective actors, i.e., instances of E74 Group, may physically participate in events via their representing instances of E21 Persons only. The participation of multiple actors in an event is most likely an indication of their acquaintance and interaction.

The property implies that the actor was involved in the event but does not imply any causal relationship. For instance, someone having been portrayed can be said to have participated in the creation of the portrait.

Examples:

* Napoleon (E21) *participated in* The Battle of Waterloo (E7)
* Maria (E21) *participated in* Photographing of Maria (E7)

In First Order Logic:

 P11(x,y) ⊃ E5(x)

 P11(x,y) ⊃ E39(y)

 P11(x,y) ⊃ P12(x,y)

### P13 destroyed (was destroyed by)

**DECISION**: The sig did some editorial work on the scope note of P13 destroyed (was destroyed by). The scope note changed

##### from (old)

**P13 destroyed (was destroyed by)**

Domain: E6 Destruction

Range: E18 Physical Thing

Subproperty of: E64 End of Existence. P93 took out of existence (was taken out of existence by): E77 Persistent Item

Quantification: one to many, necessary (1,n:0,1)

Scope note: This property links specific instances of E18 Physical Thing that have been destroyed to be related to an instance of E6 destruction event.

Destruction implies the end of an item’s life as a subject of cultural documentation – the physical matter of which the item was composed may in fact continue to exist. An instance of E6 Destruction may be contiguous with an instance of E12 Production that brings into existence a derived object composed partly of matter from the destroyed object.

Examples:

* the Tay Bridge Disaster (E6) *destroyed* The Tay Bridge (E22)

In First Order Logic:

 P13 (x,y) ⊃ E6 (x)

 P13 (x,y) ⊃ E18(y)

 P13 (x,y) ⊃ P93(x,y)

##### to (new)

**P13 destroyed (was destroyed by)**

Domain: E6 Destruction

Range: E18 Physical Thing

Subproperty of: E64 End of Existence. P93 took out of existence (was taken out of existence by): E77 Persistent Item

Quantification: one to many, necessary (1,n:0,1)

Scope note: This property links an instance of E6 Destruction to an instance of E18 Physical Thing that has been destroyed by it.

Destruction implies the end of an item’s life as a subject of cultural documentation – the physical matter of which the item was composed may in fact continue to exist. An instance of E6 Destruction may be contiguous with an instance of E12 Production that brings into existence a derived object composed partly of matter from the destroyed object.

Examples:

* the Tay Bridge Disaster (E6) *destroyed* The Tay Bridge (E22)

In First Order Logic:

 P13 (x,y) ⊃ E6 (x)

 P13 (x,y) ⊃ E18(y)

 P13 (x,y) ⊃ P93(x,y)

### P31 has modified (was modified by)

**DECISION:** The sig accepted CEO’s proposal to delete the final clause of the scope note. The scope note changed

##### from (old)

**P31 has modified (was modified by)**

Domain: E11 Modification

Range: E18 Physical Thing

Subproperty of: E5 Event. P12 occurred in the presence of (was present at): E77 Persistent Item

Superproperty of: E12 Production. P108 has produced (was produced by): E24 Physical Human-Made Thing

 E79 Part Addition. P110 augmented (was augmented by): E24 Physical Human-Made Thing

 E80 Part Removal. P112 diminished (was diminished by): E24 Physical Human-Made Thing

Quantification: many to many, necessary (1,n:0,n)

Scope note: This property identifies the instance of E24 Physical Human-Made Thing modified in an instance of E11 Modification.

If a modification is applied to a non-human-made object, it is regarded as an E22 Human Made Object from that time onwards.

Examples:

* rebuilding of the Reichstag (E11) has modified the Reichstag in Berlin (E24)

In First Order Logic:

 P31(x,y) ⊃ E11(x)

 P31(x,y) ⊃ E18(y)

 P31(x,y) ⊃ P12(x,y)

##### to (new)

**P31 has modified (was modified by)**

Domain: E11 Modification

Range: E18 Physical Thing

Subproperty of: E5 Event. P12 occurred in the presence of (was present at): E77 Persistent Item

Superproperty of: E12 Production. P108 has produced (was produced by): E24 Physical Human-Made Thing

 E79 Part Addition. P110 augmented (was augmented by): E24 Physical Human-Made Thing

 E80 Part Removal. P112 diminished (was diminished by): E24 Physical Human-Made Thing

Quantification: many to many, necessary (1,n:0,n)

Scope note: This property identifies the instance of E24 Physical Human-Made Thing modified in an instance of E11 Modification.

Examples:

* rebuilding of the Reichstag (E11) has modified the Reichstag in Berlin (E24)

In First Order Logic:

 P31(x,y) ⊃ E11(x)

 P31(x,y) ⊃ E18(y)

 P31(x,y) ⊃ P12(x,y)

### P46 is composed of (forms part of)

**DECISION**: The sig did some editing on the scope note.

**PROPOSAL**: MD proposed that the clause “The spatial extent of the part is included in the whole” be included in the scope note.

**DECISION**: the clause is to be discussed in a [separate issue](#_[NEW_ISSUE]:_spatial).

The scope note changed

##### from (old)

**P46 is composed of (forms part of)**

Domain: E18 Physical Thing

Range: E18 Physical Thing

Subproperty of: E92 Spacetime Volume. P132 spatiotemporally overlaps with: E92 Spacetime Volume

Superproperty of:E19 Physical Object. P56 bears feature (is found on): E26 Physical Feature

Quantification: many to many (0,n:0,n)

Scope note: This property allows instances of E18 Physical Thing to be analyzed into component elements..

Component elements, since they are themselves instances of E18 Physical Thing, may be further analysed into sub-components, thereby creating a hierarchy of part decomposition. An instance of E18 Physical Thing may be shared between multiple wholes, for example two buildings may share a common wall. This property does not specify when and for how long a component element resided in the respective whole. If a component is not part of a whole from the beginning of existence or until the end of existence of the whole, the classes E79 Part Addition and E90 Part Removal can be used to document when a component became part of a particular whole and/or when it stopped being a part of it. For the time-span of being part of the respective whole, the component is completely contained in the place the whole occupies.

This property is intended to describe specific components that are individually documented, rather than general aspects. Overall descriptions of the structure of an instance of E18 Physical Thing are captured by the P3 has note property.

The instances of E57 Material of which an item of E18 Physical Thing is composed should be documented using P45 consists of (is incorporated in).

Examples:

* the Royal carriage (E22) forms part of the Royal train (E22)
* the “Hog’s Back” (E24) forms part of the “Fosseway” (E24)

In First Order Logic:

P46(x,y) ⊃ E18(x)

P46(x,y) ⊃ E18(y)

P46(x,y) ⊃ P132(x,y)

P46(x,y) ⊃ (∃uzw)[E93(u) ∧ P166 (x,u) ∧ E52(z) ∧ P164(u,z) ∧ E93(w) ∧ P166 (y,w) ∧

P164(w,z) ∧ P10(w,u)]

##### to (new):

**P46 is composed of (forms part of)**

Domain: E18 Physical Thing

Range: E18 Physical Thing

Subproperty of:

Superproperty of:E19 Physical Object. P56 bears feature (is found on): E26 Physical Feature

Quantification: many to many (0,n:0,n)

Scope note: This property associates an instance of E18 Physical Thing with another instance of Physical Thing that forms part of it.

Component elements, since they are themselves instances of E18 Physical Thing, may be further analysed into sub-components, thereby creating a hierarchy of part decomposition. An instance of E18 Physical Thing may be shared between multiple wholes, for example two buildings may share a common wall. This property does not specify when and for how long a component element resided in the respective whole. If a component is not part of a whole from the beginning of existence or until the end of existence of the whole, the classes E79 Part Addition and E90 Part Removal can be used to document when a component became part of a particular whole and/or when it stopped being a part of it. For the time-span of being part of the respective whole, the component is completely contained in the place the whole occupies.

This property is intended to describe specific components that are individually documented, rather than general aspects. Overall descriptions of the structure of an instance of E18 Physical Thing are captured by the P3 has note property.

The instances of E57 Material of which an item of E18 Physical Thing is composed should be documented using P45 consists of (is incorporated in).

Examples:

* the Royal carriage (E22) forms part of the Royal train (E22)
* the “Hog’s Back” (E24) forms part of the “Fosseway” (E24)

In First Order Logic:

P46(x,y) ⊃ E18(x)

P46(x,y) ⊃ E18(y)

P46(x,y) ⊃ P132(x,y)

P46(x,y) ⊃ (∃uzw)[E93(u) ∧ P166 (x,u) ∧ E52(z) ∧ P164(u,z) ∧ E93(w) ∧ P166 (y,w) ∧

P164(w,z) ∧ P10(w,u)]

### P53 has former or current location (is former or current location of)

The sig accepted the re formulation of CEO, in the first paragraph. The first paragraph of scope note changed from

Scope note: This property allows an instance of E53 Place to be associated as the former or current location of an instance of E18 Physical Thing.

To:

Scope note: This property associates an instance of E53 Place as the former or current location of an instance of E18 Physical Thing.

### P54 has current permanent location (is current permanent location of)

**PROPOSAL**: It was proposed that the property be deprecated due to lack of use.

**DECISION**: A [new issue](#_[NEW_ISSUE]:_Deprecate) is to be formed to discuss the fate of P54.

### P57 has number of parts

The sig accepted the re formulation of CEO, in the first paragraph. The first paragraph of scope note changed from:

Scope note: This property documents the E60 Number of parts of which an instance of E19 Physical Object is composed.

To:

Scope note: This property documents the number of parts, an instance of E60 Number, of which an instance of E19 Physical Object is composed.

### P76 has contact point (provides access to)

**DECISION:** following the deprecation of E51 Contact Point in the CRM in favor of E41 Appellation, affected properties need be edited as well.

The property definition changed

##### from (old)

**P76 has contact point (provides access to)**

Domain: E39 Actor

Range: E51 Contact Point

Quantification: many to many (0,n:0,n)

Scope note: This property identifies an E51 Contact Point of any type that provides access to an E39 Actor by any communication method, such as e-mail or fax.

Examples:

RLG (E40) has contact point “bl.ric@rlg.org” (E51)

In First Order Logic:

 P76(x,y) ⊃ E39(x)

 P76(x,y) ⊃ E51(y)

##### to (new)

**P76 has contact point (provides access to)**

Domain: E39 Actor

Range: E41 Appellation

Quantification: many to many (0,n:0,n)

Scope note: This property identifies an E41 Appellation of any type that provides access to an E39 Actor by any communication method, such as e-mail or fax.

Examples:

RLG (E40) has contact point “bl.ric@rlg.org” (E41)

In First Order Logic:

 P76(x,y) ⊃ E39(x)

 P76(x,y) ⊃ 41(y)

### P79 beginning is qualified by

**DECISION**: The current scope note was accepted as a working definition by the 43rd CRM sig meeting. It still needs to undergo editing. SS was given the task of proofreading.

**HW**: SS is to proofread and edit the scope note for P79 beginning is qualified by.

##### P79 beginning is qualified by

Domain: E52 Time-Span

Range: E62 String

Subproperty of: E1 CRM Entity. P3 has note: E62 String

Quantification: many to one (0,1:0,n)

Scope note: This property associates an instance of E52 Time-Span with a note detailing the scholarly or scientific opinions and justifications about the beginning of this time-span concerning certainty, precision, sources etc. This property may also be used to describe arguments constraining possible dates and to distinguish reasons for alternative dates.

Examples:

* the time-span of the Holocene (E52) beginning is qualified by “The formal definition and dating of the GSSP (GlobalStratotype Section and Point) for the base of theHolocene using the Greenland NGRIP ice core,and selected auxiliary records”[[1]](#footnote-1) (E62)

In First Order Logic:

 P79 (x,y) ⊃ E52 (x)

 P79 (x,y) ⊃ E62(y)

 P79(x,y) ⊃ P3(x,y)

### P80 end is qualified by

**DECISION**: The scope note needs editing. SS is to proofread it.

**HW**: SS is to proofread the scope note for P80 end is qualified by

##### P80 end is qualified by

Domain: E52 Time-Span

Range: E62 String

Subproperty of: E1 CRM Entity. P3 has note: E62 String

Quantification: many to one (0,1:0,n)

Scope note: This property associates an instance of E52 Time-Span with a note detailing the scholarly or scientific opinions and justifications about the end of this time-span concerning certainty, precision, sources etc. This property may also be used to describe arguments constraining possible dates and to distinguish reasons for alternative dates.

Examples:

* the time-span of the Holocene (E52) end is qualified by “still ongoing” (E62)

In First Order Logic:

 P80(x,y) ⊃ E52(x)

 P80(x,y) ⊃ E62(y)

 P80(x,y) ⊃ P3(x,y)

### P81 ongoing throughout

Following MD’s proposal, the sig decided that the scope note for P81 needs revising due to epistemological implications. The quantification the quantification is wrong (I,n= the right one). Needs formulation. . Aside that, the sig did some editorial changes but the scope note is not complete. More editing is needed. The sig assigned to MD & CEO to reformulate it.

The last formulation of P81 is the following

P81 ongoing throughout

Domain: [E52](#_E52_Time-Span) Time-Span

Range: [E61](#_E61_Time_Primitive) Time Primitive

Quantification: many to one, necessary (1,n:0,n)

Scope note: This property associates an instance of E52 Time-Span with an instance of E61 Time Primitive specifying a minimum period of time covered by it.

Since Time-Spans may not have precisely known temporal extents, there may be multiple minimum periods of …. Union of

Examples:

* the time-span of the development of the CIDOC CRM (E52) *ongoing throughout* 1996-2002 (E61)

In First Order Logic:

 P81 (x,y) ⊃ E52(x)

 P81 (x,y) ⊃ E61(y)

### P82 at some time within

**DECISION**: Following MD’s proposal, the sig decided that the scope note for P82 needs be revised. The sig assigned to MD & CEO to reformulate it.

### P92 brought into existence (was brought into existence by)

**DECISION**: The minor editorial changes proposed by MD were accepted by the sig. The scope note of P92 changed

##### from (old)

**P92 brought into existence (was brought into existence by)**

Domain: E63 Beginning of Existence

Range: E77 Persistent Item

Subproperty of: E5 Event. P12 occurred in the presence of (was present at): E77 Persistent Item

Superproperty of:E65 Creation. P94 has created (was created by): E28 Conceptual Object

 E66 Formation. P95 has formed (was formed by): E74 Group

 E67 Birth. P98 brought into life (was born): E21 Person

 E12 Production. P108 has produced (was produced by): E24 Physical Human-Made Thing

 E81 Transformation. P123 resulted in (resulted from): E77 Persistent Item

Quantification: one to many, necessary, dependent (1,n:1,1)

Scope note: This property links an instance of E63 Beginning of Existence to the E77 Persistent Item brought into existence by it.

It allows a “start” to be attached to any Persistent Item being documented, i.e. E70 Thing, E72 Legal Object, E39 Actor, E41 Appellation and E55 Type.

Examples:

* the birth of Mozart (E67) brought into existence Mozart (E21)

In First Order Logic:

 P92(x,y) ⊃ E63(x)

 P92(x,y) ⊃ E77(y)

 P92(x,y) ⊃ P12(x,y)

##### to (new)

**P92 brought into existence (was brought into existence by)**

Domain: E63 Beginning of Existence

Range: E77 Persistent Item

Subproperty of: E5 Event. P12 occurred in the presence of (was present at): E77 Persistent Item

Superproperty of:E65 Creation. P94 has created (was created by): E28 Conceptual Object

 E66 Formation. P95 has formed (was formed by): E74 Group

 E67 Birth. P98 brought into life (was born): E21 Person

 E12 Production. P108 has produced (was produced by): E24 Physical Human-Made Thing

 E81 Transformation. P123 resulted in (resulted from): E77 Persistent Item

Quantification: one to many, necessary, dependent (1,n:1,1)

Scope note: This property links an instance of E63 Beginning of Existence to the instance of E77 Persistent Item brought into existence by it.

It allows a “start” to be attached to any instance of E77 Persistent Item being documented, i.e. as instances of E70 Thing, E72 Legal Object, E39 Actor, E41 Appellation and E55 Type.

Examples:

* the birth of Mozart (E67) brought into existence Mozart (E21)

In First Order Logic:

 P92(x,y) ⊃ E63(x)

 P92(x,y) ⊃ E77(y)

 P92(x,y) ⊃ P12(x,y)

### P114 is equal in time to

**DECISION**: The sig agreed to deprecate *P114 is equal to* in CRMbase and move it to CRMarcheo instead. It will be assigned an appropriate identifier according to the naming conventions of CRMarcheo (APxx).

### P115 finishes (is finished by)

**DECISION**: The sig agreed to deprecate *P115 finishes* in CRMbase and move it to CRMarcheo instead. It will be assigned an appropriate identifier according to the naming conventions of CRMarcheo (APxx).

### P116 starts (is started by)

**DECISION**: The sig agreed to deprecate *P116 starts*  in CRMbase and move it to CRMarcheo instead. It will be assigned an appropriate identifier according to the naming conventions of CRMarcheo (APxx).

### P117 occurs during (includes)

**DECISION**: The sig agreed to deprecate *P117 occurs*  in CRMbase and move it to CRMarcheo instead. It will be assigned an appropriate identifier according to the naming conventions of CRMarcheo (APxx).

### P118 overlaps in time with (is overlapped in time by)

**DECISION**: The sig agreed to deprecate *P118 overlaps in time with* in CRMbase and move it to CRMarcheo instead. It will be assigned an appropriate identifier according to the naming conventions of CRMarcheo (APxx).

### P119 meets in time with (is met in time with)

**DECISION**: The sig agreed to deprecate *P119 meets in time with*  in CRMbase and move it to CRMarcheo instead. It will be assigned an appropriate identifier according to the naming conventions of CRMarcheo (APxx).

### P120 occurs before (occurs after)

**DECISION**: The sig agreed to deprecate *P120 occurs before*  in CRMbase and move it to CRMarcheo instead. It will be assigned an appropriate identifier according to the naming conventions of CRMarcheo (APxx).

### P121 overlaps with

**DECISION**: the sig edited the scope notes in line with the proposals made by CEO. The scope note changed

##### from (old)

**P121 overlaps with**

Domain: E53 Place

Range: E53 Place

Quantification: many to many (0,n:0,n)

Scope note: This symmetric property allows the instances of E53 place with overlapping geometric extents to be associated with each other.

It does not specify anything about the shared area. This property is purely spatial, in contrast to Allen operators, which are purely temporal.

Examples:

* the territory of the United States (E53) overlaps with the Arctic (E53)
* The maximal extent of the Greek Kingdom (E53) overlaps with the maximal extent of the Ottoman Empire(E53)

In First Order Logic:

 P121(x,y) ⊃ E53(x)

 P121(x,y) ⊃ E53(y)

 P121(x,y) ⊃ P121(y,x)

##### to (new)

**P121 overlaps with**

Domain: E53 Place

Range: E53 Place

Quantification: many to many (0,n:0,n)

Scope note: This symmetric property associates an instance of E53 Place with another instance of E53 Place geometrically overlapping it.

It does not specify anything about the shared area. This property is purely spatial, in contrast to Temporal Primitives, which are purely temporal.

Examples:

* the territory of the United States (E53) overlaps with the Arctic (E53)
* The maximal extent of the Greek Kingdom (E53) overlaps with the maximal extent of the Ottoman Empire(E53)

In First Order Logic:

 P121(x,y) ⊃ E53(x)

 P121(x,y) ⊃ E53(y)

 P121(x,y) ⊃ P121(y,x)

### P122 borders with

**DECISION**: the sig edited the scope notes in line with the proposals made by CEO. The scope note changed

##### from (old)

**P122 borders with**

Domain: E53 Place

Range: E53 Place

Quantification: many to many (0,n:0,n)

Scope note: This symmetric property allows the instances of E53 Place, which share common borders, to be related as such.

This property is purely spatial, in contrast to Allen operators, which are purely temporal.

Examples:

* Scotland (E53) borders with England (E53)

In First Order Logic:

 P122(x,y) ⊃ E53(x)

 P122(x,y) ⊃ E53(y)

 P122(x,y) ⊃ P122(y,x)

##### to (new)

**P122 borders with**

Domain: E53 Place

Range: E53 Place

Quantification: many to many (0,n:0,n)

Scope note: This symmetric property associates an instance of E53 Place with another instance of E53 Place, which shares a part of its borders.

This property is purely spatial, in contrast to Time Primitives, which are purely temporal.

Examples:

* Scotland (E53) borders with England (E53)

In First Order Logic:

 P122(x,y) ⊃ E53(x)

 P122(x,y) ⊃ E53(y)

 P122(x,y) ⊃ P122(y,x)

### P127 has broader term (has narrower term)

**DECISION**: The scope note of the property was editing. A citation to the ISO 2788 must be added.

The scope note changed

##### from (old)

**P127 has broader term (has narrower term)**

Domain: E55 Type

Range: E55 Type

Quantification: many to many (0,n:0,n)

Scope note: This property identifies a super-Type to which an E55 Type is related.

It allows Types to be organized into hierarchies. This is the sense of "broader term generic (BTG)" as defined in ISO 2788.

This property is transitive.

Examples:

* dime (E55) has broader term coin (E55)

In First Order Logic:

 P127(x,y) ⊃ E55(x)

 P127(x,y) ⊃ E55(y)

##### to (new)

**P127 has broader term (has narrower term)**

Domain: E55 Type

Range: E55 Type

Quantification: many to many (0,n:0,n)

Scope note: This property associates an instance of E55 Type with another instance of E55 Type that has a broader meaning.

It allows Types to be organized into hierarchies. This is the sense of "broader term generic (BTG)" as defined in ISO 2788.

This property is transitive.

Examples:

* dime (E55) has broader term coin (E55)

In First Order Logic:

 P127(x,y) ⊃ E55(x)

 P127(x,y) ⊃ E55(y)

### P156 occupies (is occupied by)

**DECISION:** The scope note underwent extensive editing in line with CEO’s observation –namely, that since *P156 occupies* **isA** *P157i provides reference space for*, this relation should also reflect on the scope note. The resulting version is not finalized; it needs more proofreading. The FOL representation is correct. The scope note changed

##### from (old)

P156 occupies (is occupied by)

Domain: E18 Physical Thing

Range: E53 Place

Subproperty of: E92 Spacetime Volume. P161 has spatial projection: E53 Place

Quantification: one to one (0,1:1,1)

Scope note: This property describes the largest volume in space, an instance of E53 Place, that an instance of E18 Physical Thing has occupied at any time during its existence, with respect to the reference space relative to itself. This allows you to describe the thing itself as a place that may contain other things, such as a box that may contain coins. In other words, it is the volume that contains all the points which the thing has covered at some time during its existence. In the case of an instance of E26 Physical Feature the default reference space is the one in which the object that bears the features or at least the surrounding matter of the feature is at rest. In this case there is a 1:1 relation of E26 Feature and E53 Place. For simplicity of implementation, multiple inheritance (E26 Physical Feature IsA E53 Place) may be a practical approach.

For instances of E19 Physical Objects the default reference space is the one which is at rest relative to the object itself, i.e. which moves together with the object. We include in the occupied space the space filled by the matter of the physical thing and all its inner spaces.

This property is a subproperty of P161 has spatial projection because it refers to its own domain as reference space for its range, whereas P161 has spatial projection may refer to a place in terms of any reference space. For some instances of E18 Physical Object the relative stability of form may not be sufficient to define a useful local reference space, for instance for an amoeba. In such cases, the fully developed path to an external reference space and using a temporal validity component may be adequate to determine the place they have occupied.

In contrast to *P156 occupies*, the property P53 has former or current location identifies an instance of E53 Place at which a thing is or has been for some unspecified time span. Furthermore, it does not constrain the reference space of the referred instance of P53 Place.

In First Order Logic:

 P156 (x,y) = [E18(x) ∧ E53(y) ∧ P161(x,y) ∧ P157(y,x)]

##### to (new; working definition)

**P156 occupies (is occupied by)**

Domain: E18 Physical Thing

Range: E53 Place

Subproperty of: *E18 Physical Thing. P157i provides reference space for: E53 Place*

Quantification: one to one (0,1:1,1)

Scope note: This property describes the largest volume in space, an instance of E53 Place that an instance of E18 Physical Thing has occupied at any time during its existence, with respect to the reference space relative to itself. This allows you to describe the thing itself as a place that may contain other things, such as a box that may contain coins. In other words, it is the volume that contains all the points, which the thing has covered at some time during its existence. The default reference space for the associated place is the one that is at rest (*P157 is at rest relative to*) relative to the object that bears the feature or at least the matter surrounding it..

For instances of E19 Physical Objects the default reference space is the one which is at rest relative to the object itself, i.e. which moves together with the object. We include in the occupied space the space filled by the matter of the physical thing and all its inner spaces.

In contrast to P156 occupies, the property P53 has former or current location identifies an instance of E53 Place at which a thing is or has been for some unspecified time span. Furthermore, it does not constrain the reference space of the referred instance of P53 Place.

In First Order Logic:

 P156 (x,y) = [E18(x) ∧ E53(y) ∧ P161(x,y) ∧ P157(y,x)]

### P177 assigned property type

**DECISION**: The sig decided that the scope note should comprise a reference to the section “About Types” in the introductory chapter of the CRM definition, on a par with the scope note of *P2 has type*. The scope note changed

##### from (old)

**P177 assigned property type**

Domain: E13 Attribute Assignment

Range: E55 Type

Subproperty of: E1 CRM Entity. P2 has type: E55 Type

Quantification: many to many, necessary (1,n:0,n)

Scope note: This property associates an instance of E13 Attribute Assignment with the type of property or relation that this assignment maintains to hold between the item to which it assigns an attribute and the attribute itself. Note that the properties defined by the CIDOC CRM also constitute instances of E55 Type themselves. The direction of the assigned property type is understood to be from the attributed item (the range of property P140 assigned attribute to) to the attribute item (the range of the property P141 assigned). More than one property type may be assigned to hold between two items.

Examples:

* February 1997 Current Ownership Assessment of Martin Doerr’s silver cup (E13) assigned property type P52 has former or current owner (is former or current keeper of) (E55)
* 01 June 1997 Identifier Assignment of the silver cup donated by Martin Doerr (E15) assigned property type P48 has preferred identifier (is preferred identifier of) (E55)

In First Order Logic:

 P177(x,y) ⊃ E13(x)

 P177(x,y) ⊃ E55(y)

##### to (new)

**P177 assigned property type**

Domain: E13 Attribute Assignment

Range: E55 Type

Subproperty of: E1 CRM Entity. P2 has type: E55 Type

Quantification: many to many, necessary (1,n:0,n)

Scope note: This property associates an instance of E13 Attribute Assignment with the type of property or relation that this assignment maintains to hold between the item to which it assigns an attribute and the attribute itself. Note that the properties defined by the CIDOC CRM also constitute instances of E55 Type themselves. The direction of the assigned property type is understood to be from the attributed item (the range of property P140 assigned attribute to) to the attribute item (the range of the property P141 assigned). More than one property type may be assigned to hold between two items.

 A comprehensive explanation about refining CIDOC CRM concepts by E55 Type is given in the section “About Types” in the section on “Specific Modelling Constructs” of this document.

Examples:

* February 1997 Current Ownership Assessment of Martin Doerr’s silver cup (E13) assigned property type P52 has former or current owner (is former or current keeper of) (E55)
* 01 June 1997 Identifier Assignment of the silver cup donated by Martin Doerr (E15) assigned property type P48 has preferred identifier (is preferred identifier of) (E55)

In First Order Logic:

 P177(x,y) ⊃ E13(x)

 P177(x,y) ⊃ E55(y)

### P189 approximates (is approximated by)

The sig accepted minor proposed editorial changes. The scope note changed

From:

P189 approximates

Domain [E53](#_E53_Place) Place

Range: [E53](#_E53_Place) Place

Quantification: many to one (0,1:0,n)

Scope note: This property associates an instance of E53 Place with another instance of E53 Place, which is defined in the same reference space, and which is used to approximate the former. The property does not necessarily state the quality or accuracy of this approximation, but rather indicates the use of the first instance of place to approximate the second.

In common documentation practice, find or encounter spots e.g. in archaeology, botany or zoology are often related to the closest village, river or other named place without detailing the relation, e.g. if it is located within the village or in a certain distance of the specified place. In this case the stated “phenomenal” place found in the documentation can be seen as approximation of the actual encounter spot without more specific knowledge.

In more recent documentation often point coordinate information is provided that originates from GPS measurements or georeferencing from a map. This point coordinate information does not state the actual place of the encounter spot but tries to approximate it with a “declarative” place. The accuracy depends on the methodology used when creating the coordinates. It may be dependent on technical limitations like GPS accuracy but also on the method where the GPS location is taken in relation to the measured feature. If the methodology is known a maximum deviation from the measured point can be calculated and the encounter or feature may be related to the resulting circle using the P171 at some place within property.

To:

P189 approximates (is approximated by)

Domain [E53](#_E53_Place) Place

Range: [E53](#_E53_Place) Place

Quantification: many to one (0,1:0,n)

Scope note: This property associates an instance of E53 Place with another instance of E53 Place, which is defined in the same reference space, and which is used to approximate the former. The property does not necessarily state the quality or accuracy of this approximation, but rather indicates the use of the first instance of place to approximate the second.

In common documentation practice, find or encounter spots e.g. in archaeology, botany or zoology are often related to the closest village, river or other named place without detailing the relation, e.g. if it is located within the village or in a certain distance of the specified place. In this case the stated “phenomenal” place found in the documentation can be seen as approximation of the actual encounter spot without more specific knowledge.

In more recent documentation often point coordinate information is provided that originates from GPS measurements or georeferencing from a map. This point coordinate information does not state the actual place of the encounter spot but tries to approximate it with a “declarative” place. The accuracy depends on the methodology used when creating the coordinates. It may be dependent on technical limitations like GPS accuracy but also on the method where the GPS location is taken in relation to the measured feature. If the methodology is known a maximum deviation from the measured point can be calculated and the encounter spot or feature may be related to the resulting circle using an instance of *P171 at some place within*.

### Overall comments:

**PROPOSAL**: References should be consistent across the document; i.e. observing one citing style. SS proposed that all citations are in Harvard Style (Author. Year. Title. City. Publisher. Pages). Which means that in-text citations should not be relegated to footnotes; rather, these should conform to the in-text references in Harvard Style, i.e. (Author, Year, Pages).

## [NEW ISSUE]: Shared timespans are declarative timespans.

**HW**: MD to put in writing the reasoning supporting that shared timespans can only be declarative timespans.

## [NEW ISSUE]: spatial projections of component parts (and relation to whole)

**DECISION**: MD’s proposal to add the clause “The spatial extent of the part is included in the whole” in the scope note of P46 is composed of (forms part of) is to be discussed in a new, separate issue.

Proposed scope note:

**P46 is composed of (forms part of)**

Domain: E18 Physical Thing

Range: E18 Physical Thing

Subproperty of: E92 Spacetime Volume. P132 spatiotemporally overlaps with: E92 Spacetime Volume

Superproperty of:E19 Physical Object. P56 bears feature (is found on): E26 Physical Feature

Quantification: many to many (0,n:0,n)

Scope note: This property associates an instance of E18 Physical Thing with another instance of Physical Thing that forms part of it. The spatial extent of the part is included in the whole.

Component elements, since they are themselves instances of E18 Physical Thing, may be further analysed into sub-components, thereby creating a hierarchy of part decomposition. An instance of E18 Physical Thing may be shared between multiple wholes, for example two buildings may share a common wall. This property does not specify when and for how long a component element resided in the respective whole. If a component is not part of a whole from the beginning of existence or until the end of existence of the whole, the classes E79 Part Addition and E90 Part Removal can be used to document when a component became part of a particular whole and/or when it stopped being a part of it. For the time-span of being part of the respective whole, the component is completely contained in the place the whole occupies.

This property is intended to describe specific components that are individually documented, rather than general aspects. Overall descriptions of the structure of an instance of E18 Physical Thing are captured by the P3 has note property.

The instances of E57 Material of which an item of E18 Physical Thing is composed should be documented using P45 consists of (is incorporated in).

Examples:

* the Royal carriage (E22) forms part of the Royal train (E22)
* the “Hog’s Back” (E24) forms part of the “Fosseway” (E24)

In First Order Logic:

P46(x,y) ⊃ E18(x)

P46(x,y) ⊃ E18(y)

P46(x,y) ⊃ P132(x,y)

P46(x,y) ⊃ (∃uzw)[E93(u) ∧ P166 (x,u) ∧ E52(z) ∧ P164(u,z) ∧ E93(w) ∧ P166 (y,w) ∧

P164(w,z) ∧ P10(w,u)]

## [NEW ISSUE]: Deprecate P54 has current permanent location (is current permanent location of)

**PROPOSAL**: It is a property that appears to be redundant. The sig should decide whether it is to be kept in the CRM or not. Discussions should take place in this issue.

## About the layout of version 7.0

### Issue 437: Scope note and examples of E41 Appellation (part II)

**DECISION**: The sig reviewed the scope note for E41 Appellation (proofread by SS) and accepted it. The new scope note is presented in the issue 437 in this document. The issue closed.

### Issue 410: Layout of the CIDOC CRM official version (continuation)

**DECISION**: this decision repeats the decision taken for issue 241 above and the decision made in the 43rd CRM sig meeting –i.e. merging the sections “Monotonicity”, “Minimality”, “Extensions”, “Coverage” and “Conservative Extension of the Scope of CIDOC CRM by Model Extensions” (see these in the appendix). The decision was these sections to be included in the new version. HW assigned to Steve to put them in an order, to PR and CEO to merge the text and MD to review the final text.

The sig reviewed the e-vote results about compatibility statement. The e-vote and the answers are in the appendix.

**DECISION**: The compatibility statement needs more work. **HW**: MD

1. Walker, Mike; Johnsen, Sigfus; Rasmussen, Sune Olander; Popp, Trevor; Steffensen, Jorgen-Peder; Gibrard, Phil; Hoek, Wim; Lowe, John; Andrews, John; Bjo Rck, Svante; Cwynar, Les C.; Hughen, Konrad; Kersahw, Peter; Kromer, Bernd; Litt, Thomas; Lowe, David J.; Nakagawa, Takeshi; Newnham, Rewi; Schwander, Jakob (2009). "Formal definition and dating of the GSSP (Global Stratotype Section and Point) for the base of the Holocene using the Greenland NGRIP ice core, and selected auxiliary records" (PDF). Journal of Quaternary Science. 24 (1): 3–17. Bibcode:2009JQS....24....3W. doi:10.1002/jqs.1227. [↑](#footnote-ref-1)