

44th joint meeting of the CIDOC CRM SIG and SO/TC46/SC4/WG9;
37th FRBR – CIDOC CRM Harmonization meeting.
11 -14 June 2019

Bibliothèque Nationale de France –François Mitterrand,
Quai François Mauriac, Paris.

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Tuesday, 11th June 2019

ISSUE 340: Classes without properties

The sig reviewed the text on the Minimality section of the introductory chapter of the CRM and did some further editing.

The current version of the text reads:

Minimality

Although the scope of the CRM is very broad, the model itself is constructed as economically as possible:

- CRM classes and properties are either primitive, or they are key concepts in the practical scope.
- Complements of CRM classes are not declared, because, following the Open World Assumption, there are no properties for complements of a class (see Terminology).

A CRM class is declared when:

- It is required as the domain or range of a property not appropriate to its superclass.
- It serves as a merging point of two CRM class branches via multiple IsA (e.g. E25 Human-Made Feature). This is in contrast to using multi instantiation of the two superclasses for an item, as this results in the union of the scopes. The class that results from multiple IsA should be narrower in scope than the intersection of the scopes of the branch superclasses.
- It is useful as a leaf class (i.e. at the end of a CRM branch) to domain communities building CRM extensions or matching key domain classes from other models to the CRM (e.g. E34 Inscription).

DECISION: This is not the final version of the text. There were objections to the resulting text (even post editing) and it was decided that more thought has to be put in this text and then be discussed over again during the [current](#) sig meeting.

Objections had to do both with phrasing of things (i.e. appealing to *branch superclasses*, as there are none) and with the overall purport of contrasting multiple inheritance and multiple instantiation, where the requirements for declaring a CRM class are listed.

PROPOSAL: It was proposed that the issue be closed and that the revision of the sections on multiple inheritance and multiple instantiation --their formal definitions too --be made in a different issue.

Issue 345: Properties whose domain/range have been deprecated

Following the decision to either drop properties the domain and/or range of which have already been deprecated or assign assigning them with their respective (existing) superclasses as domain/range, CEO went through the CRM document and edited accordingly.

DECISION: issue 345 is closed.

ISSUE 277: Adjustment of the scope note of E55 Type

DECISION: After briefly discussing the “About Types” section of the CRM document, the sig decided to keep the text as is, and close the issue. The example that caused so much controversy (i.e. allowing for Artist –that is generally regarded as a type –to be treated as a subclass of E21 Person instead) was considered educational, yet not a practice to follow.

ISSUE 407: Ordinal Property for E55 Type

Given the controversy caused by the proposal to introduce a property that reflects the partial ordering of the values for certain types, it was decided that the said property would not be included in the CRM, but should find a place in some extension of the model –specifically CRMsci instead.

DECISION: Pxx is conceptually greater than (is conceptually less than) [D: E55, R: E55] will not be included in CRMbase, but some other extension of the model, preferably CRMsci.

HW: RS was given the task of drafting a new scope note for Pxxx is conceptually greater than (is conceptually less than) [D:E55,R:E55], to be reviewed over [this](#) sig meeting.

ISSUE 417: begin_of_the_begin/end_of_the_end

DECISION: Following the discussion initiated by RS’s observation that the time interval selected by P82a/b seems to have both open and closed outer boundaries, the sig assigned MD and CEO to edit the “Guidelines for using **P82a**, **P82b**, **P81a**, **P81b**” document. The purpose of that is to make sure that (i) the text corresponds to the standard practices of treating time intervals as [,) (closed/open) by default and (ii) that the examples are consistent with the best practices documented in the text.

HW: MD & CEO are to edit the document “Guidelines for using P82a/b, P81a/b” accordingly.

ISSUE 367: E13 Attribute Assignment

DECISION: The identifier for property **Pxxx assigned property type** [D:E13,R:E55] was set to P177. The fact that the number of the identifier was originally used for *P177 ends within (includes the end of)* does not pose a problem, as the said property never made it to an official version of the CRM.

DECISION: Given the distress and concerns caused by reusing identifiers in the crm, a new issue is to be made in order to explore and establish alternative options to this practice.

The definition of P177 assigned property type and E13 Attribute Assignment underwent editing, respectively. The updated definitions –property identifier for “assigned property type” changed accordingly –can be found below.

DECISION: issue is closed.

E13 Attribute Assignment

Subclass of: E7 Activity
Superclass of: E14 Condition Assessment
E15 Identifier Assignment
E16 Measurement
E17 Type Assignment

Scope note: This class comprises the actions of making assertions about one property of an object or any single relation between two items or concepts. The type of the property asserted to hold between two items or concepts can be described by the property P177 assigned property type.

For example, the class describes the actions of people making propositions and statements during certain scientific/scholarly procedures, e.g. the person and date when a condition statement was made, an identifier was assigned, the museum object was measured, etc. Which kinds of such assignments and statements need to be documented explicitly in structures of a schema rather than free text, depends on whether this information should be accessible by structured queries.

This class allows for the documentation of how the respective assignment came about, and whose opinion it was. Note that all instances of properties described in a knowledge base are the opinion of someone. Per default, they are the opinion of the team maintaining the knowledge base. This fact must not individually be registered for all instances of properties provided by the maintaining team, because it would result in an endless recursion of whose opinion was the description of an opinion. Therefore, the use of E13 Attribute Assignment marks the fact, that the maintaining team is in general neutral to the validity of the respective assertion, but registers someone else’s opinion and how it came about.

All properties assigned in such an action can also be seen as directly relating the respective pair of items or concepts. Multiple use of E13 Attribute Assignment may possibly lead to a collection of contradictory values. All cases of properties in this model that are also described indirectly through a subclass of E13 Attribute Assignment are characterized as "short cuts" of a path via this subclass. This redundant modelling of two alternative views is preferred because many implementations may have good reasons to model either the action of assertion or the short cut, and the relation between both alternatives can be captured by simple rules.

Examples:

§ the assessment of the current ownership of Martin Doerr’s silver cup in February 1997

Properties:

P140 assigned attribute to (was attributed by): E1 CRM Entity

P141 assigned (was assigned by): E1 CRM Entity

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:

$$P177(x,y) \supset E13(x)$$
$$P177(x,y) \supset E55(y)$$

[NEW ISSUE]: Exploring alternatives to reusing identifiers for newly introduced CRM classes and properties.

Given the distress and concerns caused by reusing identifiers in the crm, a new issue is to be made in order to explore and establish alternative options to this practice.

ISSUE 370: Renaming classes containing "Man-" in their label to "Human-"

DECISION: The sig ratified the result of the e-vote regarding the proposal to substitute "Man-" based terms for "Human-" based ones, instead. 18 members of the sig voted in favor of the proposed change and the decision was unanimous.

All affected classes are to be named accordingly. The issue is closed

ISSUE 360: New classes proposed for LRMoo (review) and mapping of LRMer to LRMoo.

Fxx Externalization Event (scope note reviewed and number assigned)

The motivation behind this class was to model acts resulting in an F2 Expression that not yield concrete products.

DECISION: The crm-sig reviewed the scope note drafted by MD for FRBR/LRM class Externalization Event, edited it and accepted it. The class was assigned identifier number F56. The scope note definition can be found [below](#):

DECISION: The proposal to make E65 Creation a subclass of F56 Externalization Event was rejected.

DECISION: As for the proposed property linking the Externalization Event to F2 Expression, namely Rxx has memorization in [D: F56, R: F2] –to be modelled after R17 created (was created by) [D: F28, R: F2] – reviewing it was postponed for a following sig meeting.

HW: MR is to further edit the scope note.

F56 Externalization Event

Subclass of: E7 Activity
Superclass of: F28 Expression Creation
F31 Performance

Scope note: This class comprises activities that produce signs or sensory impressions as organized and complete wholes, typically intended to be received, in this completeness, by some audience, either directly via their senses or via persistent media at some later time. It comprises in particular novel externalizations of thought- art in all forms- including rendering existing expressions such as musical scores, theatre plays, scripts or texts, in a particular manner including performing arts, writing or other methods of externalization.

Examples:

- The creation of the original manuscript score ‘Uwertura tragiczna’ by Andrej Panufnik in Warsaw (F28)
- The reconstruction from memory of the manuscript score ‘Uwertura tragiczna’ by Andrej Panufnik in 1945 after the original score was destroyed during the war (F28)
- Performing the ballet entitled ‘Rite of Spring’, as choreographed by Pina Bausch, in Avignon, at the Popes’ Palace, on July 7, 1995 [individual performance] (F31)
- Performing the operatic work entitled ‘Dido and Aeneas’, as directed by Edward Gordon Craig and conducted by Martin Shaw, in London, Hampstead Conservatoire, on May 17, 18, and 19, 1900 [run of performances] (F31)

Properties:

R19 created a realization (was realized through): F1 Work

Modal properties of F3 Manifestation

Following the decision to include F3 Manifestation in LRMoo, the sig reviewed MD’s proposal regarding the retention or deletion of the modal properties linking from it plus the proposal regarding the status of the retained ones (modal or regular properties).

DECISIONS:

1. The sig agreed on the retention of CLP2, CLP43 and CLP57, and on the deprecation of CLP46, CLP104, CLP105, CLR6 from the set of modal properties of F3 Manifestation.

2. There was also agreement on recasting

- CLP2 should have type (should be type of) [D: F3, R: E55] as **R69 specifies physical form** [D: F3, R:E55 (including material)]
- CLP43 should have dimension (should be dimension of) [D: F3, R: E54] as **R70 specifies dimension [D: F3, R: E54]**
- CLP57 should have number of parts [D: F3, R: E60] as R71: specifies number of parts[D:F3, R:E60]

3. The sig edited and accepted the scope note for R69 specifies physical form [D: F3, R: E55] drafted by MD. The new scope note reads:

R69 specifies physical form

Domain: F3 Manifestation

Range: E55 Type

Quantification: (0,n:0,n)

Scope note:

The property associates an instance of F3 Manifestation with an instance of E55 Type describing the kind of physical form that characterizes examples carrying this F3 Manifestation. In the case that the F3 Manifestation is intended to be used and distributed in digital form, the property describes the form of the physical carrier on which it can be obtained, e.g.: cd, usb, online file etc. In the case that the F3 Manifestation is an abstraction of a singleton item, the property describes the actual physical form the F3 Manifestation was abstracted from. This inference is an induction along the path that can be modelled as:

F3 Manifestation: R7i has example –F5 Item: P2 has type –E55 Type

Examples:

The recording entitled ‘The Glory (????) of the human voice’, identified by label and label number ‘RCA Victor Gold Seal GD61175’, containing recordings of musical works performed by Florence Foster Jenkins (F3): R69 specifies physical form –Compact Disc (E55).

FRBR classes in LRM (retentions and deletions):

F16 Container Work

DECISION: The crm-sig decided to deprecate this class, as it was an abstract class, with no incoming/outgoing properties, that served as a cover term for its –already deprecated –subclasses.

Instead of appealing to F16, inclusion is to be modelled through crm properties such as P148 has component (is component of) [D: E89, R: E89] and P165 incorporates (is incorporated in) [D: E73, R: E90].

Properties like Rxx incorporates external expression [D:F2, R:F2] and Rxx uses expression [D:F1, R: F1] help distinguish among inclusions of parts versus inclusions of complete expressions(/works), respectively.

Elaborating a taxonomy of meronymic relations may also be in order.

HW: PR, MZ, TA to propose a taxonomy of meronymic relations.

F18 Serial Work

DECISION: F18 Serial Work is to be kept in the model to enable the connection with Press-oo.

F29 Recording Event

The fact that a number of properties link F29 Recording Event to deprecated classes (f.i. R21 created (was created through) [D:F29, R:F26] and R22 created a realization of (was realized through) [D:F29, R:F21]), led the sig question the usefulness of F29 as such.

DECISION: It was decided that F29 Recording Event be kept in the model, as it is of a completely different character compared to the other types of creation events.

F51 Pursuit

DECISION: There should be a note making explicit that F51 Pursuit is moved to CRMsoc.

F52 Name Use Activity

DECISION: There should be a note making explicit that F52 Name Use Activity is moved to CRMsoc.

F54 Utilized Information Carrier

There was no unanimity regarding the status of this class in FRBR/LRM. However, everyone agreed that if it were to be deleted from FRBR/LRM it should probably be moved to CRMdig; in which case, properties R28 produced (was produced by) [D: F32, R: F54] and R29 reproduced object (was object reproduced by) [D: F33, R: F54] must also be reviewed.

DECISION: retaining or deleting F54 Utilized Information Carrier in FRBR/LRM is to be put up for discussion in a separate issue.

HW: SS, TA and GB are to review F54 and properties affected by its deletion, plus assess impact on CRMdig by potential moving it there.

F56 Externalization Event (see above)

FRBR properties in LRM (retentions, deletions)

R18 created (was created by)

DECISION: R18 is to remain in the FRBR/LRM, because it is useful for identifying singletons generated in an expression creation event. Its range is to be changed from F4 Manifestation Singleton (deprecated) to F5 Item.

R18 created (was created by)

Domain: F28 Expression Creation

Range: F5 Item

Subproperty of: [E12](#) Production. [P108](#) has produced (was produced by): [E24](#) Physical Man-Made Thing

Quantification: (1,n:0,1)

Scope note: This property associates an instance of F28 Expression Creation with the first physical objects in which the resulting instance of F2 Expression was embodied.

Examples: Emily Dickinson's creating the text of one of the several extant versions of her poem known as 'Safe in their alabaster chambers' (F28) *R18 created* the manuscript now identified as 'Massachusetts Cambridge Harvard University Houghton Library bMS Am 1118.3 (203c, 203d)' (F5)

Emily Dickinson's creating the text of another one of the several extant versions of her poem known as 'Safe in their alabaster chambers' (F28) *R18 created* the manuscript now identified as 'Massachusetts Cambridge Harvard University Houghton Library bMS Am 1118.5 (74c)' (F5)

The recording of the third alternate take of the musical work entitled 'Blue Hawaii' performed by Elvis Presley in Hollywood, Calif., Radio Recorders, on March 22nd, 1961 (F28) *R18 created* the master tape of the 3rd alternate take of the musical work entitled 'Blue Hawaii' performed by Elvis Presley in Hollywood, Calif., Radio Recorders, on March 22nd, 1961 (F5) (each individual take is a distinct expression)

The resource (a drawing) held by the New York Public Library and identified by call number '*MGZGB Far P Cop 1' (F5) *R18i was created by* the creation, by the artist named 'Peter Farmer', of a costume design for the character named 'War' in the Act III Masque of the seasons, in the Festival Ballet of London production of the choreographic work entitled 'Coppélia', with choreography by Jack Carter after Petipa (F28)

R20 recorded (was recorded by)

DECISION: The crm-sig has decided that property R20 recorded (was recorded through) [D: F29, R: E2] is to be kept in FRBR/LRM as a corollary of F29 Recording Event also being kept in the model. Linking the recording event to the temporal entity that was captured through it was considered useful.

R21 created (was created through)

DECISION: The crm-sig has decided that property R21 created (was created through) [D: F29, R: E26] is to be deprecated in FRBR/LRM as a corollary of F26 Recording also having been deprecated.

R21 created is just a specialization of the general R17 created (was created by) [D: F29, R: F2] property, and its range having been deprecated, it doesn't purport anything to the model. R17 is to be used instead.

R22 created a realization of (was realized through)

DECISION: The crm-sig has decided that property R22 created a realization of (was realized through) [D: F29, R: E21] is to be deprecated in FRBR/LRM as a corollary of F21 Recording Work also having been deprecated.

R23 created a realization of (was realized through)

DECISION: Following the decision to deprecate F19 Publication Work, the sig has agreed that R23 created a realization of (was realized through) [D:F30, R:F19] is redundant and should be deprecated as well.

The superproperty R19 created a realization of (was realized through) [D: F29, R: F1] is to be used instead.

R25 performed (was performed in)

DECISION: The sig decided to review whether the range of R25 performed should be F2 Expression or Fxx Externalization. It should serve as a general property that selects the particular expressions used in creating derived works, f.i. translations.

R28 produced (was produced by)

Retaining or deprecating R28 produced [D:F32, R:F54] in FRBR/LRM depends on the decision regarding F54 Utilized Information Carrier and whether it will be kept in FRBR/LRM or move to CRMdig.

DECISION: The discussion regarding R28 will be made in a separate issue –the one designated for F53 and affected properties.

R29 reproduced object (was object reproduced by)

Retaining or deprecating R29 reproduced object [D:F33, R:F54] in FRBR/LRM depends on the decision regarding F54 Utilized Information Carrier and whether it will be kept in FRBR/LRM or move to CRMdig.

DECISION: The discussion regarding R29 will be made in a separate issue –the one designated for F53 and affected properties.

R32 is warranted by (warrants)

DECISION: The crm-sig has decided to adjust this property to conform to CRMsoc, where F52 Nomen Use Activity will be moved.

R33 has content

DECISION: R33 has content [D:F12, R:E62] will be kept in FRBR/LRM. However, its quantification will be changed to (1,1:0,n) as each instance of F12 Nomen can be represented by only one string.

The proposal to relate R33 to P190 has symbolic content [D:E90, R:E62] was turned down, seeing as instances of E12 Nomen are also instances of E89 Propositional Object –hence are incompatible with E90.

R39 is intended for (is target audience in)

DECISION: The definition of the property should follow the decision regarding the revision of P103 was intended for (was intention of), which connects to Issue 411.

R40 has representative expression (is representative expression for)

DECISION: R40 has representative expression (is representative expression for) [D:F1, R:F2] is deprecated in FRBR/LRM

R41 has representative manifestation product type (is representative manifestation product type)

DECISION: R41 has representative manifestation product type (is representative manifestation product type) [D:F2, R:F3] is deprecated in FRBR/LRM

R43 carried out by (performed)

DECISION: R43 carried out by (performed) [D: F41, R: F44] is deprecated in FRBR/LRM, as a corollary of F41 Representative Manifestation Assignment and F44 Bibliographic Agency having been deprecated.

R44 carried out by (performed)

DECISION: R44 carried out by (performed) [D: F42, R: F44] is deprecated in FRBR/LRM, as a corollary of F42 Representative Expression Assignment and F44 Bibliographic Agency having been deprecated.

R46 assigned (was assigned by)

DECISION: R46 assigned (was assigned by) [D:F40 Identifier Assignment, R: F13 Identifier] is deprecated in FRBR/LRM. CRM P37 assigned (was assigned by) [D:E15 Identifier Assignment, R:E42 Identifier] is to be used instead.

R48 assigned to (was assigned by)

DECISION: R48 assigned to (was assigned by) [D:F41, R:F2] is deprecated in FRBR/LRM. CRM P140 assigned to (was assigned by) [D: E13 Attribute Assignment, E1 CRM Entity] is to be used instead.

R49 assigned (was assigned by)

DECISION: R49 assigned 9 (was assigned by) [D:F41, R:F3] is deprecated in FRBR/LRM. CRM P141 assigned (was assigned by) [D: E13 Attribute Assignment, E1 CRM Entity] is to be used instead.

R50 assigned to (was assigned by)

DECISION: Following the deprecation of F42 Representative Expression Assignment, the sig decided to revise the affected property R50 assigned to (was assigned by) [D: F42, R: F1] and change the domain and range in order to express the relation between work and expression . The new domain and range for R50 will be F1 Work and F2 Expression, respectively.

The sig consider that there is no need for a special sub-event of expression assignment since the E13 Attribute Assignment can be used for that and point to the new property when expressing attribution events

R51 assigned (was assigned by)

DECISION: the sig decided to deprecate R51 assigned (was assigned by) [D: F42, R:F2]

R52 used rule (was rule used in)

DECISION: Following the deprecation of F40 Identifier Assignment and F43 Identifier Rule, affected property R52 used rule (was rule used in) [D: F40, R: F43] was also deprecated. CRM property P33 used specific technique (was used by) [D: E7, R: E29] is to be used instead.

R59 had typical subject (was typical subject of)

DECISION: Following the decision that F51 Pursuit be moved to CRMsoc, affected property R59 had typical subject (was typical subject of) [D: F51 Pursuit, E1 CRM Entity] will also be moved to CRMsoc.

R60 used to use language (was language used by)

DECISION: Following the decision that F51 Pursuit be moved to CRMsoc, affected property R60 used to use language (was language used by) [D: F51 Pursuit, E65 Language] will also be moved to CRMsoc.

R61 occurred in kind of context (was kind of context for)

DECISION: Following the decision that F52 Name Use Activity be moved to CRMsoc, affected property R61 occurred in kind of context (was kind of context for) [D: F52 Name Use Activity, R: E55 Type] will also be moved to CRMsoc.

R62 was used for membership in (was context for)

DECISION: Following the decision that F52 Name Use Activity be moved to CRMsoc, affected property R62 was used for membership in (was context for) [D: F52 Name Use Activity, R: E74 Group] will also be moved to CRMsoc.

R63 named (was named by)

DECISION: Following the decision that F52 Name Use Activity be moved to CRMsoc, affected property R63 named (was named by) [D: F52 Name Use Activity, R: E1 CRM Entity] will also be moved to CRMsoc.

R64 used name (was name used by)

DECISION: Following the decision that F52 Name Use Activity be moved to CRMsoc, affected property R64 used name (was name used by) [D: F52 Name Use Activity, R: E41 Appellation] will also be moved to CRMsoc.

R65 recorded aspects of (had aspects recorded through)

DECISION: Property R65 recorded aspects of (had aspects recorded through) [D: F29 Recording Event, R: E18 Physical Thing] is to be kept in FRBR/LRM.

R66 included performed version of (had a performed version through)

DECISION: Property R66 included performed version of (had a performed version through) [D:F31, R:E89] is to be kept in FRBR/LRM.

PROPOSAL: It was proposed (PLB, TA) that a new general subproperty of P16 used specific object (was used for) [D:E7, R:E70] linking new class F56 Externalization Event to be introduced and serve as a superproperty of R66.

R68 is inspiration for (was inspired by)

DECISION: R68 is inspiration for (was inspired by) [D:F1, R:F1] is to be kept in FRBR/LRM

HW: drafting a scope note was assigned to PR

Rn declared aspect

DECISION: Rn declared aspect will not be made a property of FRBR/LRM

Rn de-assigned

DECISION: Rn de-assigned will not be made a property of FRBR/LRM

[NEW ISSUE]: F54 Utilized Information Carrier

DECISION: retaining or deleting F54 Utilized Information Carrier in FRBR/LRM is to be put up for discussion in a separate issue.

HW: SS, TA and GB are to review F54 and properties affected by its deletion, plus assess impact on CRMdig by potential moving it there.

ISSUE 401: Parent of F4 Manifestation Singleton

DECISION: the discussion on assigning F4 Manifestation Singleton the right superclass has become moot in view of the decision to deprecate F4 in the first place. The issue has been closed.

ISSUE 411: Intended Audience attribute of LRM and P103 was intended for (was intention of).

DECISION: The sig decided that P103 was intended for (was intention of) should best be modelled as a shortcut to a number of full paths –the latter need be specified and then be unified.

HW: PR is to redraft the scope note for P103 was intended for (was intention of), accordingly. To be reviewed in the [current sig meeting](#).

Wednesday, 12 June 2019

ISSUE 412: CRMsoc definition (introductory text)

The sig reviewed FB's HW on the Introductory text of CRMsoc. An issue raised (CEO) during the meeting was the relevance of [the last paragraph](#), regarding the reference to the usage of OntoME to develop the ontology. It was debated whether this particular paragraph is relevant to the scope of the CRMsoc. However, it became evident that this section is not about general methodological principles but an actual description of the work undertaken in order to build this particular model. The text was not considered redundant after all, but was decided to be enhanced and placed in a different section on the crm site.

DECISION: The sig edited and accepted the Introductory text of CRMsoc (HW by FB) as the definition of the model (post editing).

DECISION: The separate section on using OntoME to collaboratively build the ontology will be formed on the basis of the existing text. Once it is ready, the issue will be closed.

HW: FB and VA are to provide the section on OntoME usage.

The edited text can be found below:

[What is CRMsoc?](#)

CRMsoc is a formal ontology for integrating data about social phenomena and constructs that are of interest in the humanities and social science based on analysis of documentary evidence. The scope of CRMsoc is the following areas of analysis:

- Characteristics of human beings, as individuals or groups
- Social relations, including between people, between people and groups, and between groups
- Rights and duties
- Economic activities, including relations between people and things, such as financial transactions leading to ownership
- Plans, including expressing proposed activities and legislation
- Evaluations, including assessing risks and estimating the value of things

CRMsoc uses and extends the CIDOC CRM (ISO21127): a general ontology of human activity, things and events happening in space-time. It uses the same encoding-neutral formalism of knowledge representation (“data model” in the sense of computer science) as the CIDOC CRM, which can be implemented in RDFS, OWL, in an RDBMS and in other forms of encoding.

[What is the idea?](#)

The CIDOC CRM is a general ontology whose classes and properties primarily reflect common concepts used in documentation systems of memory institutions. These systems primarily revolve around collections. Social and historical research documentation systems also include concepts about our understanding of complex social constructs and relationships which are not necessarily linked to collections but which are essential for their interpretation. To maintain the generic nature of the CIDOC CRM these concepts have been formalised as classes and properties in CRMsoc. CRMsoc is harmonised with the CIDOC CRM and it defines how the two are connected.

CRMsoc can be used to describe economic transactions, rights held by people and groups, historical phases and the description of plans. As a high level conceptual framework for data integration the CIDOC CRM and the CRMsoc extension will provide interoperability of existing models devoted to specific historical subdomains (e.g. political, intellectual, social, economic history).

[Section on using OntoME to declare new classes and properties for CRMsoc.](#)

In order to achieve this task the CRMsoc is developed on the collaborative ontology management environment OntoME (<http://ontome.dataforhistory.org/>) through a publicly documented workflow. Models of local databases and distributed information systems are first imported and described in OntoME; then properties and classes are aligned with existing ones in the CIDOC CRM and CRMsoc; finally, new classes and properties are created, if needed, according to the modelling rules of the CIDOC CRM, expressing the multifaceted vision of a large research community with robust concepts.

ISSUE 419: Activity Plans

The sig reviewed the HW by TV regarding the scope note definitions for socExx Event Specification and socExx Activity Plan, plus the properties linking them to other CRM classes. The reviewing process primarily involved editorial work as well as changes in the content.

The edited scope notes and additional decisions and discussion points can be found below:

socExx Trigger Event Template (formerly labelled “socExx Event Specification”)

subclass of: E89 Propositional Object

Scope note: This class comprises templates of trigger events for Activity Plans by providing necessary or desirable constraints to the properties of the foreseen instance of [AN] event, be it on the level of particular items involved or on the level of kinds of processes, items or qualities and quantities involved. Instances of Trigger Event Template may be used to recognize that a past event fitted the specification, or for specifying future trigger events. Characteristically, instances of this class are created in association with instances of socExx Activity Plan, as templates for the events that should trigger the execution of an Activity Plan. For example, we expect a disaster plan for a library to be executed when the disaster happens or the disaster readiness plan to be triggered on the readiness exercise test day.

Examples:

The template specifying the potential rainy weather conditions at the location and date of my wedding (socExx Trigger Event Template), done in advance by my wedding planner, which was specified to trigger the plan (socExx Activity Plan) of using a gazebo.

The template specifying the sunny weather conditions at the location and date of my wedding (socExx Trigger Event Template), done in advance by my wedding planner, which was specified to trigger the plan (socExx Activity Plan) of taking photographs in the park.

The template specifying the humidity level reached in the museum store room (socExx Trigger Event Template), done in advance by a preventive conservator, which was specified to trigger the plan (socExx Activity Plan) of turning on the dehumidifier.

Properties:

- | | |
|--|--|
| 1. socPxx specifies event type (is specified event type of):
wedding; change of humidity level) | E55 Type (f.i.: rainy weather & |
| 2. socPxx specifies actor role (is specified actor role of): | E55 Type (f.i. a mayor) |
| 3. socPxx specifies type of thing (is specified type of thing): | E55 Type (f.i. a car) |
| 4. socPxx specifies place (is specified place of):
Cardiff City Hall, the internal space of the store rooms at the National Museum Wales) | E53 Place (f.i. the internal space of |
| 5. socPxx specifies time-span (is specified time-span of):
winter of 2019) | E52 Time-span (f.i. 1-4 June 2019; |
| 6. socPxx specifies actor (is specified actor of): | E39 Actor (f.i. mayor, John Smith) |
| 7. socPxx specifies material substantial (is specified material substantial):
wedding ring, air in NMW store room) | S10 Material Substantial (f.i. |
| 8. socPxx specifies condition (is specified condition):
that the RH > 20%) | ??E89 Propositional Object (f.i. |

DECISION: All properties are accepted in their current form (i.e. post editing), except for socPxx specifies condition (socExx Trigger Event Template, ??E89 Propositional Object), which requires more thought, as it is not clear at the moment whether the condition is to be defined or measured/observed.

HW: TV will write the scope notes for the properties (1) through (7) and SS will do the proofreading.

HW: TV & GB are to revisit (8) socPxx specifies condition to see whether it applies to analytical data or definitions.

PROPOSAL: it may be useful to establish part of relations among separate events predicted in an Activity Plan and the Event Templates that trigger them.

SocExx Activity Plan

subclass of: E29 Design or Procedure

Scope note: This class comprises plans foreseeing specific predefined activities or kinds of activities taking place. They consist of descriptions of specific constraints, patterns or types of activities that could be realized. They may also foresee that the planned activities are realized at times explicitly foreseen by the actor intending the application of the plan, for instance, to organize a conference, in which case we may talk about “active plans”. Alternatively, times of realization may be foreseen in reaction to external events of a kind foreseen by the plan, for instance the rescue activity after an earthquake following a rescue plan, or a penal action in the case of criminal activity according to a penal code, in which case we may talk about “reactive plans”. The specification of the related planned or unplanned events can be done using instances of socExx Trigger Event Template. The fact that an instance of socExx Activity Plan is linked to an instance of socExx Trigger Event Template does not require that it will only be executed after events conforming to that specification take place.

The existence of an instance of Activity Plan does not necessarily imply the intention of any particular instance of Actor to apply it. It may be created together, before or without the will to apply it. For instance, laws are created before they are passed by parliament. Any instance of Activity Plan may require specific conditions for it to be realizable. For example, my plan to lime plaster my stone wall in Britain requires that it is winter (i.e. wet and cold).

Examples:

The disaster plan of Tate Archives in case of the Thames flooding.

The proposal for conservation work for MS Greek 418 at the Saint Catherine library.

Provisions of Law 3730/2008 of the Greek Government against smoking in work places.

Properties:

- socPxx triggered by (is trigger for): socExx Trigger Event Template
- socP4 is assessed by: E31 Document

DECISION: the sig accepted the scope note definition (post-editing). The same holds for the proposed properties for SocExx Activity Plan.

ISSUE 421: Rights

Decision: Issue 421 was a failed attempt at creating a new merging point for issues on the Rights model. Discussions will continue under Issue 408. The issue is closed.

Issue 408: Rights Model Enriched

DECISION: Having reviewed the Rights Model extended by Ownership Phase and events causing it (HW by GB), the sig came to the decision that more thought is to be put on different types of rights transfer (custody/ownership/other types found on documentation), as well as on the relations for contracts and the legal framework dictating the rights to be exerted on a legal object.

HW: to GB & AI to establish these relations.

HW: to TV, RS, SS to reflect on how E89 (as a propositional object that defines the temporal validity of a right exerted on a legal object) relates to Activity Plans and Trigger Event Templates and come up with a proposal.

HW: GB to draft scope notes for classes and properties relevant for Rights Model (see below)

- socExx Jurisdiction (isA E4 Period)
- socPxx has governing body [D: socExx Jurisdiction, R: E39/E74/subclass of E74??]
- Pxx has jurisdictional validity [D:E30, R:E53]
- Pxx has temporal validity [D:E30, R: E52]
- Pxx applies right [D:E30, R: E29]
- socExx Right Holding (isA socE3 Ownership isA socE1 Bond isA E2 Temporal Entity)
- Pxx initiates [D:E8, R: Right Holding]
- socPxx holds on [D: socExx Right Holding, R: E30]
- socPxx held by [D: socExx Right Holding, R: E39]

HW: AI to come up with a proposal on a superclass of E29 and E30 (maybe “Policy”?), to be discussed in the next sig.

[ISSUE 413: F51 Pursuit and F52 Name Use Activity to be moved to CRMsoc.](#)

DECISION: Following the decision to import FRBR deprecated classes, F51 Pursuit and F52 Name Use Activity, to CRMsoc, the sig reviewed properties R45 assigned to (was assigned by) [D:F52,R:E1] and R63 named (was named by)[D:E52, R:E1] and decided that they should also be imported in CRMsoc.

HW: BF is to rename the classes and properties according to the CRMsoc conventions.

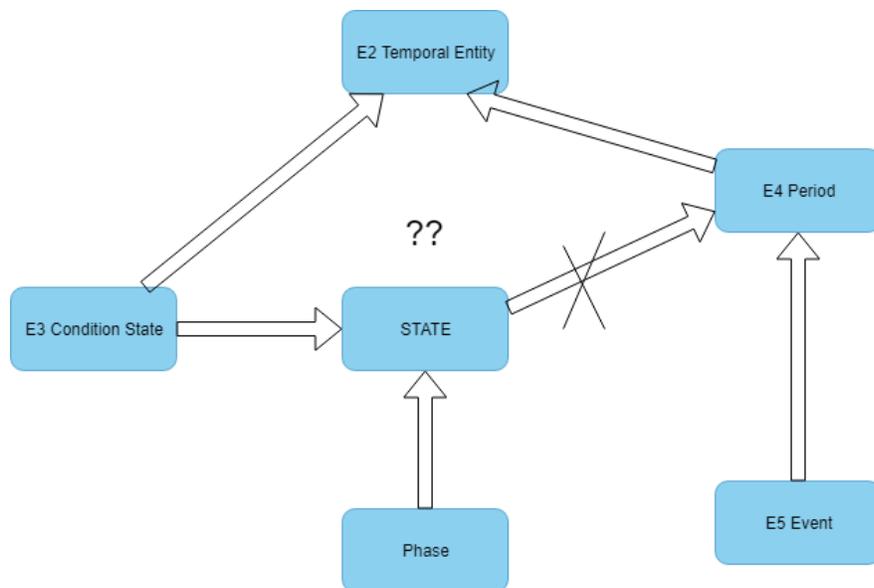
DECISION: The scope notes for the rest of the properties are to be checked for consistency with the CRMsoc (naming conventions and relevance)

HW: to FB,RS to check the scope notes. TV is to proofread.

DECISION: classes and properties will only be assigned number identifiers from the official published version and on. Until then, numbers will be arbitrarily assigned and will be subject to change.

[ISSUE 422: Phases](#)

There are numerous, competing understandings on how to proceed on the states and situations issue. Issues 369, 329 and 414 involve the question of states and indicate contradictory positions of states-related classes. The question whether the crm should declare states and, if yes, which model specifically (CRM, CRMinf, CRMsoc, CRMsci), remains unanswered. This situation is represented in the following diagram:



DECISION: More effort is to be put into teasing apart the different types of “states-like” entities, based on their inherent properties.

HW: FB is going to try and reconcile the different arrangements of states proposed thus far, aided by AG, RS, GB and SS.

HW: RS will be sharing relevant data that best capture states-like situations.

ISSUE 420: Social transactions and bonds.

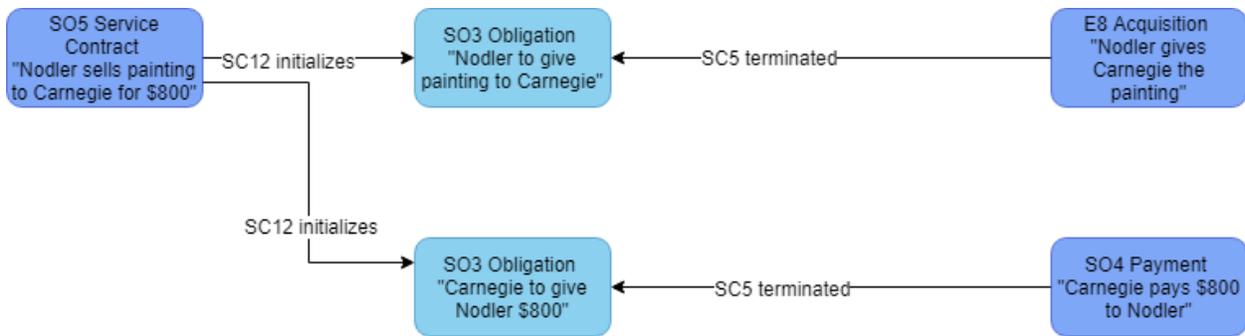
The sig reviewed the HW by MD on (i) the model for Bilateral Business Relations and (ii) on the scope note definitions for SOxx Provision and SocExx Business Obligation.

- i. A summary of the discussion concerning the model on Bilateral Business Relations can be found below:

PROPOSAL: It was suggested that a distinction among instances of SO2 Provision that initialize and those that terminate an obligation in the context of a transaction is not very clear on the diagram.

Given that an instance of SO5 Service Contract (x,y) creates a set of obligations for the buyer and the provider which are terminated by paying a certain amount of money in exchange for an object/service and providing an object/service in exchange for money, respectively, it might be useful to introduce a new set of properties (both sub-properties to P14 carried out by) to be deployed when modelling transactions:

- from the point of view of the buyer: paid from/ paid to
 - from the point of view of the provider: provisioned to/ provisioned from
- It might also be useful to introduce a new superclass for E8 Acquisition and DO4 Payment.



DECISION: it is not the case that E8 Acquisition is a SO7 Service Action

DECISION: SO1 Social Bond is a E2 Temporal Entity.

DECISION: the sig should reconsider how gift giving fits the current model and act accordingly.

ii. The edited scope notes for SOxx Provision and SO3 Obligation can be found below:

HW: RS, FB, AG and AK were assigned with providing examples for SOxx Provision and *SOxx Business Obligation* from actual project data and their data dictionaries such that they either match and corroborate the proposed model on provisions and exchanges or they disprove it. AG is to provide historical data, AK data from sealit.

SOxx Provision

Subclass of E7 Activity

Scope Note: This class comprises activities of one Actor, the “provider”, providing to another Actor, the “receiver”, some particular entity of identifiable social value that is generally regarded to imply a formal obligation for compensation. The provided entity may be a material service, such as repairing a car, a payment or loan of a monetary amount, the title of a quantity of potatoes, or the granting of rights of ownership or use, etc., and should constitute a well-defined unit. Except for the case of being a gift in the proper sense or an act of bribery. A Provision may initialize an obligation of the receiver to the provider, increase an existing obligation or being itself a compensation already and decrease or terminate an existing obligation of the provider to the receiver. A Provision may or may not be associated with a precise monetary counter-value, agreed or demanded beforehand or afterwards. Be it with or without a defined monetary value, the units of mutual provisions should be such that the involved parties should be able to decide when provisions have terminated mutual obligations, although the partners may have different opinions about this. In societies maintaining a currency, in a typical market purchase partners would exchange some goods against immediate payment. Such cases should be modelled by specializing this class to the typical, simplified forms of accountable exchange business in a society. But even in such societies, economic difficulties of partners regularly lead to agreements overriding the specified formal monetary equivalents of provisions, which a historically correct model must be able to represent adequately.

SOxxx Business Obligation

Subclass of SO1 Social Bond

Scope Note: This class comprises a temporary relationship of a socially accepted form between two business partners consisting of an obligation to make compensating provisions to each other, normally with the goal to terminate the obligation immediately or within some agreed time-span. An instance of SOxxx Business Obligation may implicitly come into being by an agreed-on initial provision of one partner, or by a formal contract. It ends with an agreement of the partners about completed compensation or the arbitration by a responsible social institution. The obligation may be accountable, i.e., quantifiable in terms of a currency, and compensation may be agreed to be defined arithmetically based on monetary values and counter-values, such as when paying for a purchase in a supermarket, but also when paying back a loan with interest rates for years. In other cases, partners

may agree to define the compensation of obligations by a set of particular material provisions, or by a combination of monetary exchange and provisions without a defined monetary counter-value, as characteristically in small communities, earlier societies but also in exchanges between cultural heritage institutions. Even in a modern industrialized society, business obligations may be supported by, but are not defined by mathematical accounting. Economic difficulties of partners regularly lead to agreements overriding the defined monetary counter-values. Even if the units of provisions made are well-defined, partners may not agree on the termination of the obligation and appeal to an arbiter.

Informal obligations, such as those initiated by gifts or attempts of bribery, and obligations by other social interactions that cannot be formally compensated or terminated, in whatever form of community or society, do not fall under this class and may be modelled as other forms of obligation sharing more general traits with this class.

Thursday, 13 June 2019

ISSUE 416: Scope note of E34 Inscription

DECISION: The sig corroborated the result of the e-vote on the proposal by MD to edit the scope note for E34 Inscription, to avoid mention of deprecated class, E84 Information Carrier in it. The proposed change was unanimously accepted (12 sig members voted). Editing involved changing label of E22 Man-Made Object to E22 Human Made Object, according to decisions taken for Issue 370. The issue is closed.

The scope note changed

FROM E34 Inscription (OLD)

Subclass of: E33 Linguistic Object
E37 Mark

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.

Examples:

- “keep off the grass” on a sign stuck in the lawn of the quad of Balliol College
- The text published in Corpus Inscriptionum Latinarum V 895
- Kilroy was here

In First Order Logic:

$E34(x) \supset E33(x)$

$E34(x) \supset E37(x)$

TO E34 Inscription (NEW)

Subclass of: E33 Linguistic Object
E37 Mark

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 E22 Man-Human Made Object. P128 carries (is carried by): E33 Linguistic Object.

Examples:

- “keep off the grass” on a sign stuck in the lawn of the quad of Balliol College

- The text published in Corpus Inscriptionum Latinarum V 895
- Kilroy was here

In First Order Logic:

$E34(x) \supset E33(x)$

$E34(x) \supset E37(x)$

ISSUE 415: Missing P189i is approximated by

DECISION: The sig corroborated the result of the e-vote on the proposal by MD to edit the label of P189 approximates, to include the inverse property (is approximated by). The proposed change was unanimously accepted (8 sig members voted). The issue is closed. P189 changed

FROM P189 approximates (old):

Domain [E53](#) Place

Range: [E53](#) 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.

Examples:

In First Order Logic:

$P189(x,y) \supset E53(x)$

$P189(x,y) \supset E53(y)$

$P189(x,y,z) \supset [P189(x,y) \wedge E55(z)]$

Properties: P189.1 has type: [E55](#) Type

TO P189 approximates (is approximated by) (NEW):

Domain [E53](#) Place

Range: [E53](#) 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.

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Examples:

In First Order Logic:

$P189(x,y) \supset E53(x)$

$P189(x,y) \supset E53(y)$

$P189(x,y,z) \supset [P189(x,y) \wedge E55(z)]$

Properties: P189.1 has type: [E55](#) Type

ISSUE 378: Adding notes for most specific interpretation of properties.

The sig reviewed the text by MD on guidelines concerning the alternatives to using .1 properties.

DECISION: The text was accepted (post-editing) and was given the title: “Implementing properties of properties (.1) by using has note (P3). Given the disagreement with alternative (B), it was decided that it should be marked as a non-preferred option. Furthermore, it was decided that links should be made to the property class implementation presentation, to make sure that people using the crm are aware of that option. Last, the sig decided that the following document should go under CRM/The Model/Best Practices. The issue is closed.

Implementing properties of properties (.1) by using has note (p3)

Frequently scholars and scientists would like to express more detail about a particular relation (property) between two entities than the type of the property itself expresses. These may be more details about the respective role or attitudes or arguments about the reliability of the information. In order to formally attach notes to properties in the currently dominant knowledge representation languages, one needs to replace the property by an equivalent path with an intermediate, auxiliary entity. Even though this mechanism has been provided for the CRM as "[property classes](#)", depending on the implementation choices, this may increase the complexity of the model and the user interface and decrease the performance of respective databases. The details given are in most cases not relevant in order to filter a large set of data by it. In that case they are relevant for the receiving user, but not for querying, and hence can be better expressed in a textual note.

The question that arises is where to put the note, if not to an intermediate entity: to the domain instance or the range instance of the respective property. This is often intuitively done in the opposite way it should be done.

For instance: "Building house X"(E12) - P4 was carried out by - "John Smith"(E21)- P3 has note: "in the role of designer" sound perfectly logical, but is wrong!

This is the effect of context-free propositions in KR. The user sees the local context, but the note is attached to the person, not to the building activity. The role however does not hold for the person at all times, but only for this person in this activity. If "John Smith" will have another role in another activity, the context of this role becomes ambiguous. Therefore, if a note is meant to describe a property, but is instead attached to either domain or range instance, it must contain, in textual form, the path to the other entity instance.

This leaves two choices for the above example:

A)

"Building house X"(E12) - P4 was carried out by - "John Smith"(E21).

"Building house X"(E12) - P3 has note: "was carried out by John Smith in the role of designer"

B)

"Building house X"(E12) - P4 was carried out by - "John Smith"(E21) P3 has note: "performed Building house X in the role of designer"

Of these two options, A is the recommended solution. The instance "Building house X"(E12) is actually the context for this role, or, in other terms, more specific to the property instance than the actor. The rule, therefore, is to attach the note about a property to the domain or range instance that provides the context to describing the property, as shown in choice A) in the above example, if the property is not going to be expanded by an intermediate entity. Otherwise, one has to repeat the missing path in the note as shown in B), above, which is suboptimal.

Another solution for implementing .1 properties in RDF is documented [here](#).

ISSUE 351: Modelling principles

DECISION: The sig decided to leave this issue open for the moment.

HW: CEO is assigned with reviewing the second part of the document *Principles for modelling ontologies: a short reference guide*.

ISSUE 380: Qualified properties P79 & P80

DECISION: The sig accepted the changes in the scope note definition of P80 end is qualified by, as proposed by MD. The discussion on the ways to express the indeterminacy of the right outer boundary of the time interval designated by P80 should be transferred to issues regarding rdf implementations of the CRM. The issue is closed.

PROPOSAL: there should be a list of open issues in the rdf implementation of the crm.

The scope note changed:

from P80 end is qualified by (old)

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 qualifies the beginning of an E52 Time-Span in some way. The nature of the qualification may be certainty, precision, source etc..

Examples:

The time-span of the Holocene (E52) end is qualified by approximately (E62)

to P80 end is qualified by (new)

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)

ISSUE 373: Managing CRM and CRM extension versions.

The sig pondered on the steps necessary for maintaining the crm (base and extensions) and went through proposals regarding tools that might come in handy in the process.

Most sig members mentioned that the process of maintaining the models (integrating changes from the master document to the rdfs version and testing for consistency across models/different versions of models) is extremely cumbersome and error-prone as it is now done manually. Which is why they would prefer updating the models and checking for compatibility issues among them to be done in a (semi)automated way.

In principle noone was against that, but it's not a pragmatic solution given the lack of funding.

FB proposed that OntoME be used for the purpose of supplementing the maintenance of the models, as it can do versioning, text comparison etc. However, opting for one tool or another at this stage would require optimizations --that they, themselves would require funding to be implemented --so this solution was abandoned.

CB suggested that the sig describe the functionality that a system would require to assist in maintaining the crm (base and compatible models) but without setting its mind on one particular tool.

DECISION: There should be an outline of what is needed to maintain the models.

HW: AG is assigned with preparing a requirement analysis regarding what the tool/service should do and the sig is to review that.

New membership application:

The sig accepted Muriel Van Ruymbeke's application to join the CRM-sig.

ISSUE 320: Quantification of properties in CRMinf

DECISION: The sig reviewed CEO's HW on the quantification of CRMinf properties and accepted his proposal. SS is to update the document of CRMinf accordingly. Issue is closed.

HW: SS is to update the document of CRMinf accordingly

Quantification of CRMinf properties:

J1 used as premise (was premise for) [D:15 Inference Making, R: 12 Belief]

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

J2 concluded that (was concluded by) [D:11 Argumentation, R:12 Belief]

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

J3 applies (was applied by) [D: 15 Inference Making, R:13 Inference Logic]

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

J4 that (is subject of) [D:12 Belief, R:14 Proposition Set]

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

J5 holds to be [D:12 Belief, R:16 Belief Value]

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

J6 adopted (adopted by) [D:17 Belief Adoption, R:12 Belief]

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

J7 is based on evidence from (is evidence for) [D:17 Belief Adoption, R:E73 Information Object]

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

ISSUE 334: Scholarly Reading

DECISION: The sig reviewed the labels that have been proposed at various times for CRMinf class I9, and opted for "Provenanced Comprehension". The issue is closed.

ISSUE 349: Belief Values

TV mentioned that the degree of confidence in the data is an issue that comes up a lot in conservation studies; hence, he'd like to try summarizing the major discussion points on certainty values –see if a guidelines document could be drafted on the basis of these discussion points. This effort could be part of the work in view of the Linked Conservation Data Workshop, September 2019.

DECISION: The sig assigned TV to see how the discussion in issue 349 carries over to the conservation domain and try to put together a guidelines document. FB has volunteered to collaborate in this effort.
(HW)

ISSUE 387: CRMinf examples

DECISION: The sig assigned GB & SS to review the example of the Three Churches of Rigny and make sure it's valid. In principle, the example should be included in the introduction of the CRMinf document.

ISSUE 366: Belief conditions for the input data of the data evaluation process

The sig reviewed the alternative solutions proposed by TV regarding the correct way to model the relation of S6 Data Evaluation to D9 Data Object.

DECISION: Appealing to one instance of S5/I5 Inference Making and directly linking it to D9 data Object through a new property was not considered felicitous.

DECISION: The right way to model the relation of S6 Data Evaluation to D9 Data Object, is go through two separate instances of S5/I5 Inference Making that each used as premise (J1) a distinct instance of I2 Belief that (J4) a Proposition Set (I4) –which involves an instance of D9 –holds true.

The issue is closed.

ISSUE 316: co-reference statements to CRMinf

The SIG reviewed this sleeping HW assignment (SS). Reaffirmed the need for this work.

Updated the proposed HW with changes from LRMoo. SS explained that this was a partial HW. It must be aligned in consideration with I9 Provenanced Comprehension. Need also to take into account the Non-Coference Statement.

DECISION: Out of the proposed properties Jx3 used (was used by) [D: I7 Belief Adoption, R: F4 Manifestation Singleton] will be deleted, given that its range has been deprecated. The other two properties are listed below.

Jx1 used manifestation of type (was type of manifestation used by)

Domain: I7 Belief Adoption

Range: F3 Manifestation Product Type

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

Scope note: This property associates an instance of I7 Belief Adoption with the instance of F3 Manifestation Product Type that carried the instance of F2 Expression that contained the instances of E89 Propositional Object that make up the I4 Proposition Set being adopted. It assumes that a non-contentious reading of the instance of F2 Expression has allowed the instances of E89 Propositional Object to be elicited and enumerated.

This property is a shortcut over the long path

I7 Belief adoption

J6 adopted

I2 Belief

J4 that (is subject of)

I4 Proposition Set

P148 has component (is component of)

E89 Propositional Object

P148i has component (is component of)

F1 Work
R3 is realised in (realises):
F2 Expression
R4i is embodied by
F3 Manifestation

QUESTION: Do we want to include a shortcut of the implied minimum set of inferences that have taken place as well?

I7 Belief adoption
J6 adopted
I2 Belief
J2 concluded that (was concluded by)
I5/S5 Inference Making
J1 used as premise (was premise for)
E25 Human-Made Feature
O16 observed value (value was observed by)
S4 Observation
O8 observed (was observed by)
F5 Item
R7i is materialized in
F3 Manifestation
R4 is embodied in
F2 Expression

Examples:

In First Order Logic:

[Jx2 used \(was used by\)](#)

Domain: I7 Belief Adoption

Range: F5 Item

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

Scope note: This property associates an instance of I7 Belief Adoption with the particular instance of F5 Item that carried the instance of F2 Expression that contained the instances of E89 Propositional Object that make up the I4 Proposition Set being adopted.

This property is a shortcut over the long path: See above

Examples:

In First Order Logic:

[ISSUE 407: Ordinal Property for E55 Type](#)

(Continued from DAY1):

DECISION: The sig reviewed the scope note definition by RS and accepted its introduction to CRMsci. The scope note for the property can be found below:

HW: CEO is to add a sentence explaining that the scope of this relation is to express well-defined linear orderings.

Oxxx is conceptually greater than (is conceptually less than)

Domain: E55 Type

Range: E55 Type

Scope note: This property allows an instance of E55 Type from a particular concept scheme or vocabulary to be declared as having an order relative to other instances of E55 Type in the same or other concept schemes, without necessarily having a specific value associated with either instance. This allows, for example, for an E55 Type instance representing the concept of "good" in a conservation report vocabulary to be greater than the E55 Type instance representing the concept of "average" in the same vocabulary. This property is transitive, and thus if "average" is greater than "poor", then "good" is also greater than "poor". In the domain of statistics, types that participate in this kind of relationship are called "Ordinal Variables"; as opposed to those without order which are called "Nominal Variables". This property allows for queries that select based on the relative position of participating E55 Types.

ISSUE 411: Intended Audience attribute of LRM and P103 was intended for (was intention of)

DECISION: The sig reviewed PR's HW on expanding P103 was intended for (was intention of) [D:E71, R:E55] so that it can cover intended audience attributes in LRM) and accepted the proposed scope note. SS made editorial changes after the meeting.

PROPOSAL: GB suggested that a separate audience-related property be introduced from E71 Human-Made Thing, in order to capture the difference between a target-audience and the actual instances of E71 Human-Made Things being used.

DECISION: The sig appointed GB to form an issue concerning the split of use vs. target audiences and propose possible solutions.

The scope note reads:

P103 was intended for (was intention of)

Domain: E71 Human-Made Thing

Range: E55 Type

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

Scope note: This property links an instance of E71 Human-Made Thing to an E55 Type of usage or audience. It creates a property between specific human-made things, both physical and immaterial, to Types. This property can be used to specify intended methods and techniques of use or to characterize the intended audience by indicating a type of personal characteristic that everyone falling into the target audience has. Note: A link between specific human-made things and a specific identified use activity should be expressed using P19 was intended use of (was made for).

- Examples: This plate (E22) *was intended for* being destroyed at a wedding reception (E55)
- Reading for life, a first book for adults and their tutors, by Virginia French Allen, first published in 1987 by Spring Institute for International Studies, ISBN 094072300X (E28) *was intended for* adult literacy learners in the English language (E55)
- Piglet has a bath, by A.A. Milne, illustrations by Ernest H. Shepard, published on sealed plastic pages by Dutton Children's Books in 1998, ISBN 0525460926 (E28) *was intended for* young children having a bath (E55)

In First Order Logic:

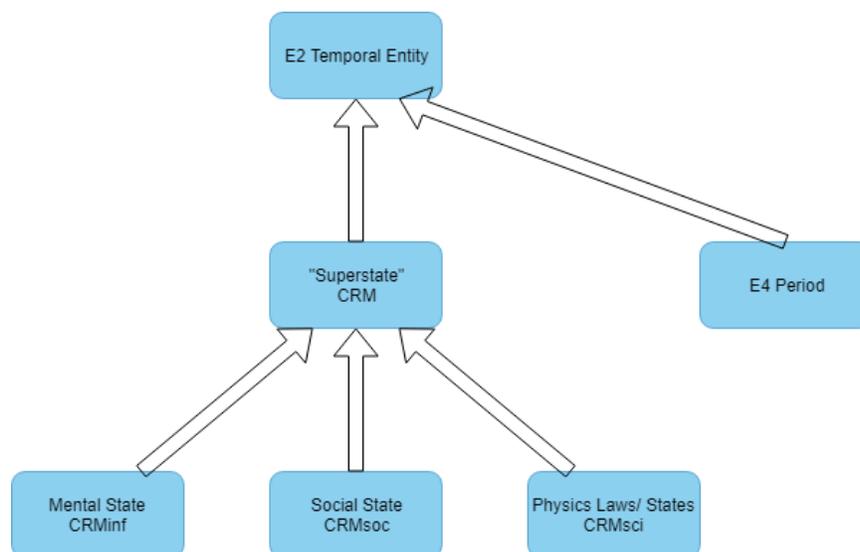
$P103(x,y) \supset E71(x)$

$P103(x,y) \supset E55(y)$

ISSUE 414: CRMsci O14 initializes

AK's request that O14 initializes (is initialized by) [D:E5 Event, R:S16 State] be updated to O14 initializes (is initialized by) [D:E5 Event, R:E3 Condition State], gave rise to a long discussion regarding the incorporation of states-like classes in the CRM –base and family models –and where these should be placed.

The proposed hierarchical ordering of states-related classes, the relevant CRM module they should find their place in and their varying interpretations according to the domain in question, were captured in the following diagram:



DECISION: The sig decided that O14 should be deprecated in CRMsci. It is to be reinstated in CRMInf, taking as range lxx Situation or some other relevant class. Issue 414 is closed, discussions regarding the range of O14 are to be subsumed in Issue 329.

HW: SS is to come up with the definition of lxx Situation in CRMInf.

ISSUE 388: Reference to the measurements of position of things

The sig was inconclusive regarding the proposed new class Sxxx Position Measurement and its incoming/outcoming properties. It was mentioned that it is not clear how this class is a subclass of E13 Attribute Assignment/E16 Measurement.

DECISION: MD should provide more information, including the intension of the class and its properties plus a number of relevant examples (HW).

ISSUE 332: Properties of S10 Material Substantial of CRMsci

DECISION: The sig reviewed the HW by TV regarding the new property to be introduced in CRMsci, namely Oxx split from [D:S2 Sample Taking, R:S13 Sample]. The scope note for the property was accepted.

HW: The sig appointed TV and RS to provide examples.

The scope note reads:

Oxx split (was split by)

Domain: S2 Sample Taking

Range: S13 Sample

Subproperty of: S2 Sample taking: O5 removed (was removed by): S13 Sample

Scope note: This property associates an instance of S2 Sample Taking with an instance of S13 Sample that was removed during this activity. The resulting S13 Sample maintains the characteristic qualities of the instance of S10 Material Substantial that the sample was taken from. This property should be used to model cases when a homogenous sample is split into multiple ones.

ISSUE 293: How to determine observable entities?

DECISION: The sig reviewed the HW by AK on measurements of observable entities. For want of more context, it was impossible to reach a decision.

HW: AK and MD are to explain this HW to the sig (preferably over the next in-person meeting, unless they think this can be achieved through email exchange)

ISSUE 409: CRMarcho generalization of the properties AP12 confines and AP11 has physical relation

DECISION: Given the complexity of the topological relations linking stratigraphic units to excavation units, the sig appointed SS and CEO to write a FAQ document on that (**HW**).

ISSUE 397: Dimension Intervals

DECISION: The sig assigned CB with uploading on the CRM site the document of the guidelines for using the subproperties of P90 has value, i.e. [P90a_has_lower_value_limit] & [P90b_has_upper_value_limit]. The document will be published under Best Practices. The issue is closed.

Friday, 14 June 2019

ISSUE 410: Layout of the CIDOC CRM official version

(A) Scope notes for P11 had participant (participated in) [D:E5,R:E39] and P12 occurred in the presence of (was present at) [D:E5,R:E77]

DECISION: The sig reviewed the scope notes for P11 had participant and P12 occurred in the presence of (HW by MD), did some editing and accepted the changes proposed. The intent of the rewrite was to make sure that the instances of E39/E77 were associated with the event they participated in/were present at, respectively, rather than the place where the event unfolded. The scope notes for P11 and P12 can be found below:

P11 had participant changed

from P11 had participant (participated in) (old)

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 E5 Event.

It connects the life-line of the related E39 Actor with the E53 Place and E50 Date of the event. The property implies that the Actor was involved in the event but does not imply any causal relationship. The subject of a portrait 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:

$P11(x,y) \supset E5(x)$

$P11(x,y) \supset E39(y)$

$P11(x,y) \supset P12(x,y)$

to P11 had participant (participated in) (new)

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:

$P11(x,y) \supset E5(x)$

$P11(x,y) \supset E39(y)$

$P11(x,y) \supset P12(x,y)$

P12 occurred in the presence of (was present at) changed

from P12 occurred in the presence of (was present at) (old)

Domain: E5 Event
Range: E77 Persistent Item

Superproperty of: E5 Event. P11 had participant (participated in): E39 Actor
E7 Activity. P16 used specific object (was used for): E70 Thing
E9 Move. P25 moved (moved by): E19 Physical Object
E11 Modification. P31 has modified (was modified by): E18 Physical Thing

E63 Beginning of Existence. P92 brought into existence (was brought into existence by): E77 Persistent Item
E64 End of Existence. P93 took out of existence (was taken out of existence by): E77 Persistent Item
E79 Part Addition.P111 added (was added by): E18 Physical Thing
E80 Part Removal.P113 removed (was removed by): E18 Physical Thing

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

Scope note: This property describes the active or passive presence of an E77 Persistent Item in an E5 Event without implying any specific role.

It connects the history of a thing with the E53 Place and E50 Date of an event. For example, an object may be the desk, now in a museum on which a treaty was signed. The presence of an immaterial thing implies the presence of at least one of its carriers.

Examples:

§ Deckchair 42 (E19) was present at The sinking of the Titanic (E5)

In First Order Logic:

$P12(x,y) \supset E5(x)$
 $P12(x,y) \supset E77(y)$

to P12 occurred in the presence of (was present at) (new)

Domain: E5 Event

Range: E77 Persistent Item

Superproperty of:

- E5 Event. P11 had participant (participated in): E39 Actor
- E7 Activity. P16 used specific object (was used for): E70 Thing
- E9 Move. P25 moved (moved by): E19 Physical Object
- E11 Modification. P31 has modified (was modified by): E18 Physical Thing
- E63 Beginning of Existence. P92 brought into existence (was brought into existence by): E77 Persistent Item
- E64 End of Existence. P93 took out of existence (was taken out of existence by): E77 Persistent Item
- E79 Part Addition.P111 added (was added by): E18 Physical Thing
- E80 Part Removal.P113 removed (was removed by): E18 Physical Thing

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

Scope note: This property describes the active or passive presence of an instance of E77 Persistent Item in an instance of E5 Event without implying any specific role.

It documents known events in which an instance of E77 Persistent Item was present during the course of its life or history. For example, an object may be the desk, now in a museum on which a treaty was signed. The E53 Place and E52 Time-Span where and when these events happened provide us with constraints about the presence of the related E77 Persistent Item in the past. Instances of E90 Symbolic Object, in particular information objects, are physically present in events via at least one of the instances of E18 Physical Thing carrying them. Note, that the

human mind can be such a carrier. A precondition for a transfer of information to a person or another new physical carrier is the presence of the respective information object and this person or physical thing in one event.

Examples:

- Deckchair 42 (E19) was present at The sinking of the Titanic (E5)

In First Order Logic:

$$P12(x,y) \supset E5(x)$$
$$P12(x,y) \supset E77(y)$$

(B) Text of section Introduction to the basic concepts (formerly known as An Overview of the Model)

DECISION: The sig reviewed the text of the introductory section of the CRM Introduction to the basic concepts (formerly known as *An Overview of the Model*) [HW by TV], did some editing and accepted it – minor editorial work still pending. The text can be found below.

HW: GB is assigned with doing the editorial work.

Introduction to basic concepts

The following paragraphs explain core CRM concepts. The CIDOC CRM relies on the top level concepts of E77 Persistent Item, equivalent to the philosophical notion of endurant; E2 Temporal Entity, equivalent to the philosophical notion of perdurant and further introduces the concept of E92 Spacetime Volume.

The CRM describes entities which remain relatively stable with the passing of time (E77 Persistent Item) and have identity based on the continuity of their significant properties. These include, among others, monuments (e.g. E22 Human-Made Object) and mental ideas (e.g. E28 Conceptual Object). These entities are prone to change through human activity, biological, geological or environmental processes, but are regarded to exist as long as such changes do not alter their identity (essence). For example, the Great Sphinx of Giza may have lost part of its nose, but there is no question that we are still referring to the same monument as that before the damage occurred, since it continues to represent significant characteristics of an overall shaping in the past, which is of archaeological relevance.

The CRM also includes entities (E2 Temporal Entity), which are themselves time-limited processes or evolutions within the passing of time. They necessarily involve an affected material, social or mental environment, in the form of E77 Persistent Items or continuous substance, such as the atmosphere. They include, among others, making things by humans (E12 Production) and geological events (E5 Event). Once these entities occur, they can only be experienced through observation or recordings. Evidence of such entities (E2 Temporal Entity) may be preserved on material objects being permanently affected or recorded through oral history.

Therefore, a basic distinction of records modelled through the CRM is between instances of E77 Persistent Item (endurants) and instances of E2 Temporal Entity (perdurants). In most cases, this distinction is adequate to describe database records. In exceptional cases, where we need to consider complex combinations of changes of spatial extent over time, the concept of spacetime (E92 Spacetime Volume) also needs to be considered. E92 Spacetime Volume describes the entities whose substance has or is an identifiable, confined geometrical extent that may vary over time, fuzzy boundaries notwithstanding. For example, the built settlement structure of the city of Athens is confined both from the point of view of time-span (from its founding until now) and from its changing geographical extent over the centuries, which may become more or less evident from current observation, documents and excavations. Even though E92 Spacetime Volume is an important theoretical part of the model, it can be ignored for most practical documentation and modeling tasks.

We explain these concepts with the help of graphical representations in the next sections.

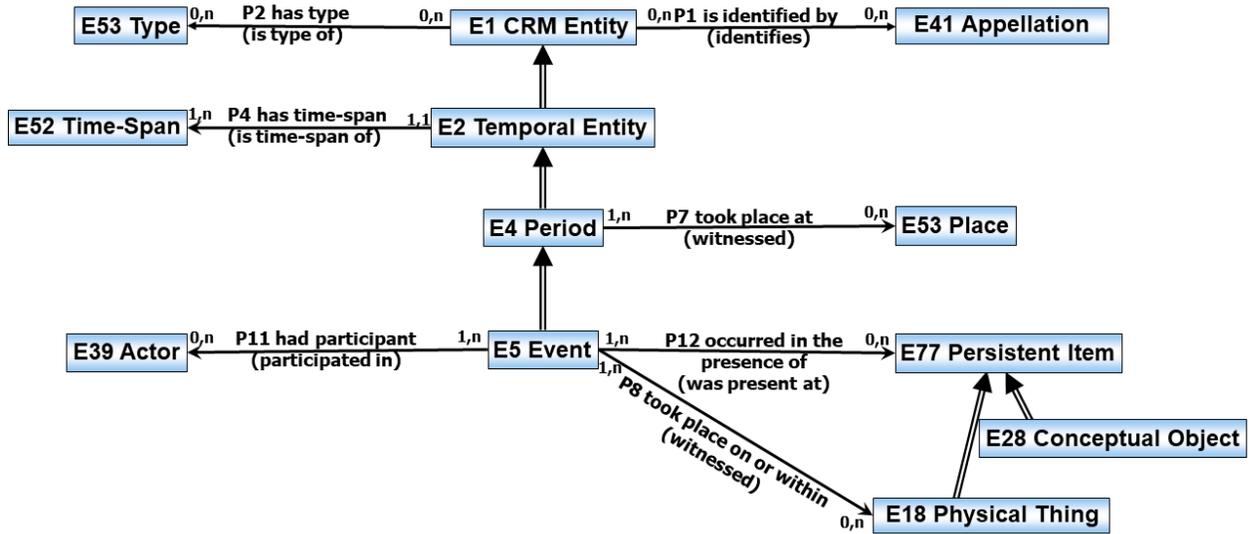
(C) Accompanying graphs (HW by AK)

The sig reviewed the graphs by AK (i) event-basic structure and (ii) Spacetime volume.

Event-basic structure

DECISION: The diagram was accepted as such.

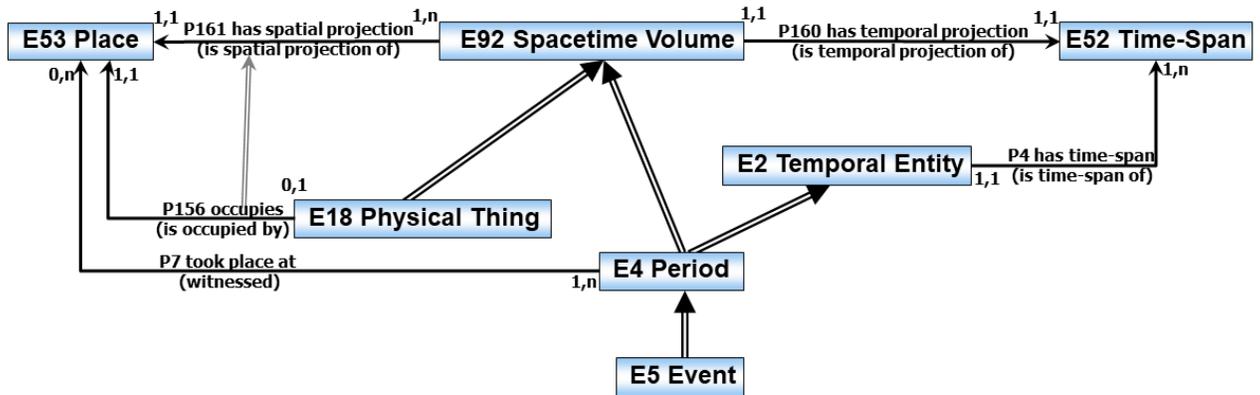
Event-basic structure



Spacetime Volume

DECISION: The graph is accepted in principle. However, the ultimate decision will depend on the outcome of the discussion regarding the effort to reconcile E92 Spacetime Volume with E2 Temporal Entity and Period. The quantification of properties must also be looked into more closely.

Spacetime Volume

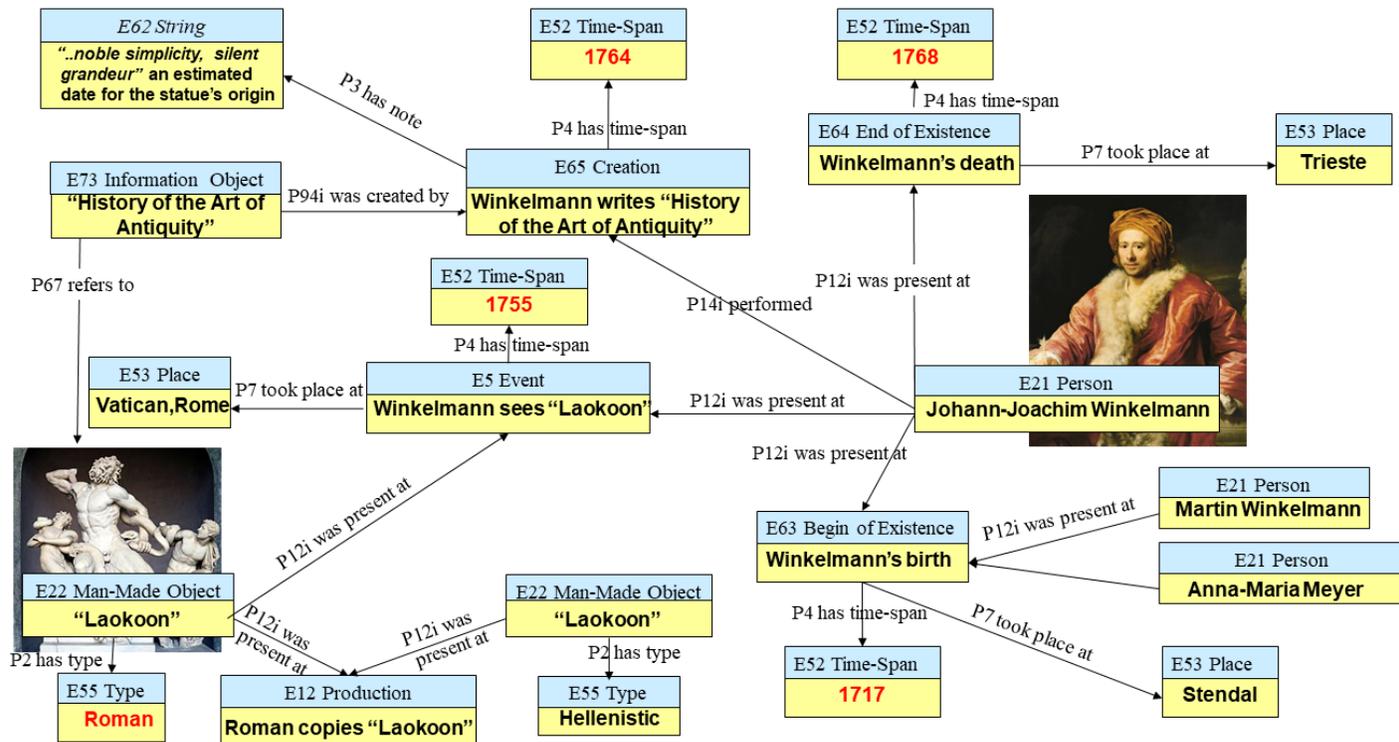


(D) Examples section for the section “Introduction to the basic concepts”

The sig reviewed the diagram by MD. It is an example integrating data of different types –biographical (Winkelmann), archival (Laokoon) and bibliographical (Winkelmann writing the History of Ancient Art).

DECISION: The example was overall accepted. The issues raised are listed below. The “problematic” values are marked in **red** in the diagram:

- the fact that it represents aspects of the integration of data of different types should be made explicit by an accompanying text and also by encapsulating the data relevant for each type in a separate box.
- instead of declaring the temporal information on E52 Timespan, the relevant set of properties demarcating the beginning and the end of the said timespan should be used.
- the type assigned to “Laokoon”, i.e. “Roman”, was not fully comprehended.



(E) Compatibility with the CRM section

DECISION: The sig has not reached a decision regarding the compatibility statement.

ISSUE 326: Resolving inconsistencies between E2, E4, E52 and E92

The sig discussed once more the relation of E92 Spacetime Volume with E18 Physical Thing and E4 Period.

DECISION: It was agreed among the members present in the meeting that declaring an isA relation btw E92 on the one hand and E18 on the other permits adding a temporal aspect to instances of E18 Physical Thing. In the extreme case, this would be tantamount to partitioning physical things in discrete "phases/stages" and directly reasoning about the temporal properties of the said "phases/stages". Seeing as this is an unwanted result, instead of declaring E18 and E4 subclasses of E92, it was proposed (and widely agreed upon) that they each be linked to a relevant instance of E92 Spacetime Volume via a one-to-one "Pxx has" property. Adding an extra node to achieve the one-to-one relation between the spacetime volume and the object or period having it was not considered problematic.

Furthermore, the sig considers that given the misapprehensions regarding spacetime volumes, more justification for when to invoke them and when to avoid using them or what they are after all is called for.

DECISION: implement

- Pxx has [D:E18 Physical Thing, R:E92 Spacetime Volume]
- Pxx has [D:E4 Period, R:E92 Spacetime Volume]

DECISION: interpret

- P156 occupies (is occupied by) [D:E18 Physical Thing, R:E53 Place] as a shortcut from the full path:
E18 Physical Thing –Pxx has → E92 Spacetime Volume –P161 has spatial projection →E53 Place
- P7 took place at (witnessed) [D:E4 Period, R: E53 Place]
E4 Period –Pxx has → E92 Spacetime Volume – P161 has spatial projection → E53 Place
- P4 has timespan (is timespan of) [D:E4 Period, R:E52 Timespan]
E4 Period –Pxx has → E92 Spacetime Volume –P160 has temporal projection →E52 Timespan

NOTE: Despite changing the relation btw E92 and E18/E4 to a “Pxx has”-type, the difficulty to distinguish P4 has timespan and P160 has temporal projection remains.

HW: CEO will be checking all affected properties (scope notes and quantification thereof) to see where they clash with the assumed structure.

HW: CB will be testing the model for consistency in Telos

HW: GB & RS will be providing examples the modelling of which will prove the Spacetime Volume useful

ISSUE 395: Symbolic Content

DECISION: The sig accepted the scope note definition for P190 has symbolic content [D:E90 Symbolic Object, R:E62 String] (HW by MD). The entry for the property can be found below. The issue is closed.

P190 has symbolic content

Domain: E90 Symbolic Object

Range: E62 String

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

Scope note: This property associates an instance of E90 Symbolic Object with a complete, identifying representation of its content in the form of an instance of E62 String. This property only applies to instances of E90 Symbolic Object that can be represented completely in this form. The representation may be more specific than the symbolic level defining the identity condition of the represented. This depends on the type of the symbolic object represented. For instance, if a name has type "Modern Greek character sequence", it may be represented in a loss-free Latin transcription, meaning however the sequence of Greek letters. As another example, if the represented object has type "English words sequence", American English or British English spelling variants may be chosen to represent the English word "colour" without defining a different symbolic object. If a name has type "European traditional name", no particular string may define its content.

Examples:

- The materials description (E33) of the painting (E22) *has symbolic content* "Oil, French Watercolors on Paper, Graphite and Ink on Canvas, with an Oak frame."
- The title (E35) of Einstein's 1915 text (E73) *has symbolic content* "Relativity, the Special and the General Theory"
- The story of Little Red Riding Hood (E33) *has symbolic content* "Once upon a time there lived in a certain village ..."
- The inscription (E34) on Rijksmuseum object SK-A-1601 (E22) *has symbolic content* "B"

In First Order Logic:

$P190(x,y) \supset E90(x)$

P190(x,y) \supset E62(y)

ISSUE 314: The introductory text of the CIDOC CRM site

The sig reviewed GB's HW on the introductory text for the CRM site (*What is the CIDOC CRM?* and *Who are we?*) and the introductory text for the "Use and Learn" section of the CRM site.

DECISION: Regarding the introductory text to the CRM site, the sig agreed that the documents by GB are to substitute current "*What is the CIDOC CRM?*" and "*Who are we?*" versions found in the home page of CIDOC CRM. The texts can be found below:

What is the CIDOC CRM?

The CIDOC Conceptual Reference Model (CRM) is a theoretical and practical tool for information integration in the field of cultural heritage. It can help researchers, administrators and the public explore complex questions with regards to our past across diverse and dispersed datasets. The CIDOC CRM achieves this by providing definitions and a formal structure for describing the implicit and explicit concepts and relationships used in cultural heritage documentation and of general interest for the querying and exploration of such data. Such models are also known as formal ontologies. These formal descriptions allow the integration of data from multiple sources in a software and schema agnostic fashion.

The CIDOC CRM has been developed in a manner that is intended to promote a shared understanding of cultural heritage information by providing a common and extensible semantic framework for evidence-based cultural heritage information integration. It is intended to be a common language for domain experts and implementers to formulate requirements for information systems and to serve as a guide for good practice of conceptual modelling. In this way, it can provide the "semantic glue" needed to mediate between different sources of cultural heritage information, such as that published by museums, libraries and archives.

The CIDOC CRM is the outcome of over 20 years of development and maintenance work, originally by the CIDOC Documentation Standards Working Group and, presently, by the CIDOC CRM SIG, both of which are working groups of CIDOC. Since December, 2006, it has been recognized as an official ISO standard. This status was renewed in 2014 and can be found at ISO 21127:2014.

The CIDOC CRM is a living standard that is designed in such a way as to provide both high level information retrieval and the formulation and documentation of very specific data points and questions. The CIDOC CRM thus consists of the CRMbase standard which provides the basic classes and relations devised for the cultural heritage world. This base ontology is complemented by a series of modular extensions to the basic model. Such extensions are designed to support different types of specialized research questions and documentation such as bibliographic documentation or geoinformatics. The CIDOC CRM extensions are developed in partnership with the research communities in question. These extensions are formulated in a manner that is harmonized with the base ontology such that data expressed in any extension is compatible with the base system of concepts and relations. This harmonized development process leads to a high level of information integrity and integration not available in other information systems.

Who are we?

CIDOC CRM is developed by the CIDOC CRM Special Interest Group. This is a volunteer community dedicated to the development and maintenance of a common standard for integrating cultural heritage data. The SIG works under the aegis of CIDOC, the International Council for Documentation, which, in turn, is a committee of the International Council of Museums (ICOM). Membership in the CIDOC CRM SIG is on an institutional basis and its membership includes private and public institutions associated with the research and documentation of the human past. The

work of the SIG is done on a volunteer basis and funding comes from the contributions in kind of the member institutions in supporting the work of their staff in contributing to this project. The SIG meets three or four times a year, the meetings being hosted by the member institutions of the SIG. As an active working group of ICOM, the SIG also participates in the annual CIDOC conference and the triannual meetings of ICOM. The present membership of the CIDOC CRM SIG can be consulted [here](#).

DECISION: Regarding the section *How can I use the CIDOC CRM?*, the sig did some editorial work on the fly. It was agreed that the text needs be rewritten and then placed under the *Use and Learn* section. The document, in its working form, can be found below:

How can I use the CIDOC CRM?

The CIDOC CRM is, first of all, an intellectual system for organizing and integrating cultural heritage data. This system is officially expressed in specification documents. These documents are available in the [resource](#) section of this website. These are the official reference documents for the CIDOC CRM and are actively maintained by the CIDOC CRM SIG and updated according to user needs and the organic growth of the standard.

Using CIDOC CRM in practical data integration scenarios can be achieved in a number of ways. In a common scenario it can be implemented in RDF or OWL based knowledge bases; alternatively, it can be used to enable the implementation of cross database query interpreters. It can also be used as an intellectual guide in order to build more effective traditional relational databases.

In order to begin the adoption of CIDOC CRM in different use scenarios, potential adopters are encouraged to consult the tutorials and information available in [the teaching section of this website](#). There are also a series of FAQ documents designed to help answer common questions of CRM adopters. Potential users/members of the CRM community are also welcomed to contact the CIDOC CRM SIG for advice and information. If you are already using CIDOC CRM and have questions or issues that are not resolved by the documentation and tutorials, you may always join the [CIDOC CRM SIG mailing list](#) and post questions on specific topics there. The results of past questions and issues are collected on the website and form a [useful archive](#) to consult in order to answer previously asked questions.

As mentioned above, the CIDOC CRM now encompasses both the basic standard, CRMbase, as well as a family of modular extensions. Each of these extensions has its own specific website to support its use in the same manner as above. To see the present list of extensions, please click [here](#).

UPCOMING CRM-SIG MEETINGS

After the meeting in Heraklion (22-25 October 2019) two more meetings need to be called: one early in spring, the other in June. The one in June will take place in Liege, hosted by Muriel van Ruymbeke (Université de Liège). In what concerns the early spring meeting, AF and ML are to be contacted to see whether their institutions would be willing to host the sig meeting.

List of abbreviated names found in the document:

Acronym	Name	Institution
AF	Achille Felicetti	PIN IT
AG	Anaïs Guillem	University of California Merced
AI	Antoine Isaac	Europeana
AK	Athina Kritsotaki	ICS-FORTH
CB	Chryssoula Bekiari	ICS-FORTH
CEO	Christian Emil Ore	University of Oslo
FB	Francesco Beretta	LARHRA
GB	George Bruseker	ICS-FORTH
MD	Martin Doerr	ICS-FORTH
ML	Matteo Lorenzini	ETH Zurich - GTA
MR	Mélanie Roche	Bibliothèque National de France
MvR	Muriel van Ruymbeke	Université de Liège
NC	Nicolas Carboni	UZH
PR	Pat Riva	Concordia University
RS	Rob Sanderson	J.Paul Getty Trust
SS	Stephen Stead	Paverprime Ltd
TA	Trond Aalberg	NTU/OSLOMET
TV	Thanasis Velios	University of the Arts, London