49th joint meeting of the CIDOC CRM SIG and ISO/TC46/SC4/WG9; 42nd FRBR-CIDOC CRM Harmonization Meeting.
8-11 March 2021

University of Oslo, Faculty of arts, Unit for digital documentation
Online on Zoom platform

Participants

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Monday, 8 March 2021

Presentation of CIDOC-CRM v7.1 (new official release); Martin Doerr

Link to presentation

1. Vote **on accepting this release as the official version of the CRM**, and a base of what will be submitted to ISO. Everyone in agreement with that proposal.

DECISION: the current version (7.1) will be referred as the official and will be submitted to ISO. Any comments etc. are welcome.

2. **Consent Form**

The IPR statement has changed from the last official release. Therefore, we need people who have participated in the SIG's activities over the years (meetings and/or discussion through the list) and have actively contributed to the current official release to sign a consent form that is in line with the new IPR statement, and share it with CB and ET.

Link to download the consent form: https://drive.google.com/file/d/1HRpEvUn4cqO7qxucbv45taJNR25fP2r-/view?usp=sharing

522: Identification of Visual Items.

Discussion of MDs proposal to edit the scope note of E36 Visual Item and add a new example.

RS: Link to equivalent issue in Linked Art: https://github.com/linked-art/linked.art/issues/252

Vote on the revised scope note and new example:
In favor: 14,
Against: none

Decision: the definition (scope note and example for E36) will be revised accordingly. The change is in reference to CIDOC-CRM v 7.1.1. Details in the Appendix.

484: Missing examples

P175 starts before or with the start of (starts after or with the start of)

- The production of the scarab seal (E12), found in Poros in a context of LMIIIB, *starts after or with the start of* Tutankhamun period (1332-1323 B.C) (E4)
  [Of the scarab stamp seal found in Poros, Heraklion. The co-finds are dated to LMIIIB period. The find is dated to the Tutankhamun period or later. It belongs to the scarabs of type "nh.s n Jmn". During Akhenaten period, the production of these scarab seals stopped (the name of Amun is not referred during his kingdom). So the scarab cannot have been produced before Tutankhamun period:it is probably a later production] (Karetsou 2000)

MD: at the end of Akhenaten's rule the Priest of Amun took over and changed the official religion. That the scarab seal depicts Amun, is an indication that it was produced after the death of Akhenaten, which starts precisely with the beginning of Tutankhamun's reign.

- The production of the cylindrical seal of the first Dynasty of Babylon (E12), found in tholos B in Platanos *starts after or with the start of* the Hammurabi period of the kingdom (E4)
  [Of the cylindrical seal of the first Dynasty of Babylon found in tholos B in Platanos believed to connect king Hammurabi with the MM I period. Specifically, although the finding is believed to have been found in a MM I layer, it contained material from the MM III/YM I period. So the seal may be dated back to the Hammurabi period, but it may be dated to a later period.] (Walberg 1992.)

References:

- Karetsou, A. (2000). Kriti-Aigyptos: politismikoi desmoi trion chilietion. *Athens: Archaeological Museum of Herakleion*.
- Walberg G. 1992. The Finds at Tell el-Dabʿa and Middle Minoan Chronology. Ägypten und Levante / Egypt and the Levant, 157-159

Discussion:

DN: very nice examples, but if one is interested in relative chronology, the safest option is to look at anything found in tombs. If one finds a coin in a particular burial place, then it would be wrong to assume that the grave is as old as the coin. The dating of the coin would correspond to the time the coin was produced. Not the time it was buried. The dating actually refers to the beginning of the period during which the coin was produced, that lies before the tomb was dug. That is to say, that the period that the coin was produced starts before or with the start of the digging of the tomb.

Vote on the new examples:
In favor: 12,
Against: none

Decision: The two examples are to be introduced in the CRM (in reference to v7.1.1). To undergo minor editing.

530: Bias in data structure

Short presentation by **TV**;

Presentation of the WPC Project, by P.Goodwin

PG: WPC Project in relation to CIDOC CRM and the discussions in the SIG.

Worlding Public Cultures Project: Leading an international consortium of museums and universities (UvA, VUA, Concordia University, Carleton University, Heidelberg University)

End goal is to facilitate international exchange on key exhibitions, university courses and activist campaigns centered on decolonizing museums, transnational-decolonial curating in the field of transnational art.

Project website to function as a global hub for exchanging information in the field.

Expand the project to include narratives from the "Global South".

Methodology: not only collecting data for the database, but also organizing 3-4 day events with partner institutions.

- Nov 2019 Ottawa (Carleton Uni.): how indigenous art has been curated, discussed and theorized in museums and universities
- Sep 2021 Amsterdam: decolonization, activism, and institutions (i.e. how cultural heritage organizations can rethink on the content of their collections)
- Dec 2021: London: Worlding the Caribbean -Caribbean as a global culture (to inform museum and pedagogical practices worldwide -accompanied by a major exhibition on Caribbean art at the Tate)

The database for the WPC project heavily draws on CIDOC CRM for the schema. Building the database resulted in a number of issues to be brought up: (i) the underlying assumptions, which conceptions of Art in the Western thought rely on; (ii) the structure and purpose of the database and how they can be made more transparent.

Would like to collaborate with the SIG for the discussion of these issues.

Discussion:

OE: needs there to be a clear definition of bias. Bias vs. cultural practice etc. Wordcloud of semantic relations –part of the work of the WG. Something that should be determined quite early.

RS: assertion about bias in cultural heritage collections produced by Yale (definition of bias was a large part of the process). Core terminology for bias that they concluded at: **bias**, **inclusion**, **transparency**, **awareness**, **responsibility**, **ethical**, **anti-oppression**, **dignity** and **humility**

MD: well-defined goals from the start if possible. In what concerns the SIG, we need to be clear about the function of the CRM. To establish connections among constructs observed in cultural historical description. It's extremely neutral in this respect. However, being committed to ensuring that no part of cultural diversity is lost, means that we have to understand (i) the kinds of statements one can make using the CRM, (ii) the kinds of statements we would like the CRM to be able to support.

What needs be taken into account is the information that is relevant/salient from the perspective of the cultures it stems from. Especially with what has been dubbed *indigenous art*.

RS: The core aspect of the bias discussion is not the *result* of the standardization process, but the *methods* by which we come to those results including direct engagement with those affected by the results.

PROPOSAL:

a) **Form a working group** ([WPC](#) is a potential partner/forum)
b) **Discuss and understand what the concerns are** (Which forms of bias in data structures can interfere with cultural points of view, and what empirical or theoretical means we have to detect them? Should documenting concepts of one's culture as an empirical fact be regarded as bias? Find common denominator or maximise diversity?)
c) **Produce a statement on bias for the CRM specification document**
d) Establish **criteria for examining classes and properties**
e) Create **new issues for improving the model**

Vote on the formation of a WG:
In favor: 10
Against: none

Decision: inform the sig-list of the decision to start a WG on the discourse around bias and ask if they want to join the initiative. **TV** will be leading the discussion, **PG** and **M.H-U** will support the initiative.

528: Guidelines and protocols for translations
Background information:

PM: CHIN bound by Canadian multilingual policy –standards need be available in both English and French. The release of CIDOC CRM v7.1 seems like the right time to discuss translation policy issues:

(a) The SIG must ensure a quality translation (for that there is a need for guidelines, quality check, explicit submission protocol)
(b) Easily updated (cannot rely on ISO versions for the translations, there are interim releases that implement major changes to the model, possibly with an rdf, they should form the basis for the translations)

There are also issues relating on how to proceed with the translations (start off with the classes, the properties, a core set of classes and properties and move to the more specific ones etc.). If there are guidelines for translations from previous ISO version, they should come in handy.

Input from participants engaged in translations initiatives.

AG: French initiative (2019: MASA), mostly archaeologists; also cultural heritage professionals. Workshop on learning how to use the CRM and produce a French translation. Translation as a pedagogical tool –helps best understand the model. It was a collaborative effort from different institutions. Methodology accessible in gitlab (https://gitlab.huma-num.fr/bdavid/doc-fr-cidoc-crm), revisions, issues etc. It's a long-term project.

MN: Database for translating CIDOC CRM to Farsi on Qoqnus; effort and potential pitfalls documented here (https://qnssupport.nosa.com/forums/aft/256).

FN: truly necessary initiative. Poses a number of challenges. We have to decide beforehand which is the official version, the one that supersedes all others (English). Translations are derivatives. The process of translating the CRM is already documented by the Iranian, the French (and now the Canadian) initiatives. We must draw on their experience. Also assign key persons per language (at least one) who are responsible for the translation process in their language.
New versions of the CIDOC CRM document appear often enough. Translating such an extensive document is difficult to begin with, let alone keep up with constant revisions. It won't be done and over with in a fortnight. The SIG has to provide the set of terms and typing conventions (like IsA f.i.) that should remain constant across languages.
There has to be some notion of quality control; terminology in various languages has to be certified and validated, meaning a set of legal requirements must be met. Who accepts a translation as official?
These (and more) issues to be addressed in the work of the taskforce that will ultimately produce the guidelines.

PM: CHIN are working with translators and they can share their approach re. the Canadian-French translation, they can discuss their strategies/linguistic and other resources they use.

PW: The CRM is approved by the Chinese government as the official standard for documentation (2020). They can no longer rely on the old Taiwanese translation (dated from 2015). He wants to get involved in the initiative and would like to know more regarding the process. Note: The label Chinese is rather misleading, because Chinese and Taiwanese are not one and the same dialect.

MD: He has personally been involved in official translation projects for more than one languages (Greek, German, Taiwanese). Proposes to distinguish among a number of discrete aspects of the issue, that call on different courses of action:

(a) Concerning the content of the translation: how to express labels
(b) Very big structure problem: common tool to trace the versions, which the translations stand in reference to. Something to do versioning on the model and the translations.
(c) Communication/ feedback: the translations identified ambiguities and poorly expressed concepts in the original definition of the CRM. We should keep track of cases where the linguistic expression in the target language does not correspond 100% to the concept in the English version. Validation of the translations in target languages falls under this particular point.

TV: the Drupal installation that has been set up for the CIDOC CRM website allows for internationalization of labels. The delivery of the final content could be accommodated within the current setup. Should be checked by CB and team at FORTH.
Experience with Language of Bindings Thesaurus -the translation is authorized/approved by local committees of experts that are competent in the target language. It shouldn't be exclusively a matter of the SIG, but such committees should be consulted.

CB: Link to CIDOC CRM translations: (http://cidoc-crm.org/translations2)

PR: She has worked in the translation of RDA, they were presented with the same set of problems: translation of an evolving standard, validation of translation, multiple target languages. The experience from that project has

been documented in a number of articles. The process involved a translations working group. Within IFLA there are some guidelines for translating standards. But a regularly evolving standard is an activity in which the SIG should actively engage.

Need a back-end support system (in terms of software and people). Very interested in participating in that.

AC: Previous official version of the CRM translated to Ukrainian, also the CIDOC CRM game. Validation is a requirement; they want to discuss it.

MD: with the Chinese translation there was a constant feedback from the sig; the concepts that caused the most stress for Chinese translators were revised in the original (English) version.

Proposal:

Put together a WG to discuss issues concerning the translation of the CRM -in terms of methods, protocols, tools to apply when translating.

Vote on proposal
In favor: 13
Against: 0

Inform the SIG-list of this intiative -PM to send around the email.

Consider following aspects as a starting point -each corresponding to an overall broader issue:
1. content guidelines
2. interoperability standard + versioning tools
     (a) too many tools
     (b) structure units and mark them up etc.
3. communication and validation protocols

526: Named Graph Guidelines
Long discussion:

ArK: introducing guidelines/standards re.the use of named graphs one is confronted with the fact that they form artificial constructs on top of the RDF semantics. There is no binding re.what kind of statements one can express with named graphs. Need RDF tools to work with named graphs in a meaningful way. His position: do not bother try to introduce interoperability at the level of named graphs.

MD: a named graph is a fundamental logical mechanism serving as a means to aggregate reifications: in CRMinf the scope is restricted to propositions.

RS: Define the scope of the work and what we can make recommendations about.

SjS: Recommendation about how the actual named graph is structured or its function or form?

NC: adding semantics to named graphs -take a look at RDF-Star, which in principle allows multiple reifications: https://github.com/w3c/rdf-star/

GH: Needs to have provenance statements using named graphs. RDF-Star should definitely be part of the discussion. He would like to contribute to the discussion.

MD: we explicitly need the named graph structure for two constructs: provenance statements and Argumentation. If no semantics attached, could someone provide with a proposal to form a minimal semantics (f.i. ES, CM)? What is the practical functions that are already supported by tools?

Proposal: Given that the issue has not a very rigid scope, is producing guidelines for named graphs a course of action that we should consider pursuing? **Resolved by means of a vote**:

Vote for continuing this line of work:
In favor: 8
Against: 1 (RS). Not a veto, but does not think it's a good use of the SIG's time, not unless the issue has been understood better. Needs to be made concrete.

Decision: Start by crafting initial thoughts re the scope of the issue and how to proceed: formulate minimal needs from the CRM perspective (MD)

HW: MD, ML, NC, SjS, GB, GH, DO (use cases)

Closing remarks:

MD: **Returning to the translation issue** –all teams engaging in CRM translation projects should be mentioned at a visible place on the website.

TV: use the page for translations for that.

HW: everyone leading an official translation project is to be contacted in order to share details to be posted on the website.

Tuesday, 9 March 2021

282: mappings of CRMarchaeo and EH.

CEO presented the current state of the issue. According to the 43rd sig meeting minutes, some actions have been decided:

a) There should be a new document "From Allen Operators to Temporal Relation Primitives and from Temporal Relation Primitives to Allen Operators", which will describe the mapping of Allen operators to the primitives. This document will be uploaded to the best practices. (MD's HW)
b) LCH is to copy the definitions of the temporal properties into the pre mentioned document.
c) AF is assigned to contact Keith May so that we get the last updated version of the EH (to use in the mapping).

Re point (a): Allen Operators to Temporal Relation Primitives: it's not in a separate document, but in the migration-paths offered for the temporal primitives in v7.1. This topic is obsolete.

Re point (b): since there is no separate document, but this is also obsolete

Re point (c): also obsolete, since the mapping has been done. There has been no update on EH. The last available version, is the one we have mapped to.

AF: According to KM, maybe a mapping FROM EH TO CRMarchaeo, as the latter seems more mature.

Decision: Close the issue, there is nothing left to do.

294: E55 Type relations

Background: all relations (of APxx appears in, APxx restricted to, APxx typical for) have been accepted by the sig to appear in CRMarchaeo. What is pending is (a) their quantification --MD had proposed to change the quantification to many-to-many, and (b) to review the updated scope notes (HW by MD).

Proposal: **Vote** on (i) accepting the definitions of the said properties (in their current form) as a starting point – they are OK from the perspective of content; (ii) they are to be assigned CRMarchaeo identifiers (AP-numbers); (iii) quantification changed to many-to-many for the lot; (iv) explicitly mention dating practices in archaeology as a means to associate instances of E55 Types to instances of E4 Period they are characteristic of.

In favor: 8
Against: 0

Decision:

1. No Objection re. the change of quantification to many-to-many
2. Scope-note editing: SdS to fix the English and incorporate the reasoning concerning the quantification and minimality need to be embedded in the scope notes (**HW** for SdS)
3. APnumbers: AP29 through AP31 respectively.

The details of the property definitions can be found in the appendix.

446: the nature of A1 Excavation Process Unit

CEO presented his slides on the semantics of the properties pointing to/from A1 Excavation Process Unit that needed be re-examined as a result of A1 having been declared a subclass of S4 Observation, S1 Matter Removal, and E12 Production. The question came up to remove S1 Matter Removal from the list of superclasses of A1, but that is not necessary.

The question is,
(a) if we should declare AP4 produced surface [D: A1 Excavation Process Unit, R: A10 Excavation Interface] **isA** P108 has produced [D: E12 Production, R: E24 Physical Human Made Thing]; and, if yes,
(b) what does it entail?
(c) Also, what about renaming A1 to Excavation Processing Unit (proposal made at the 46ᵗʰ SIG meeting).

CEO's presentation can be found here:

Proposal:

Re. **point (b) above:** CEO provided a set of alternative solutions (see appendix) and proposed that the sig opt for making A10 Excavation Interface a direct subclass of E25 Human Made Feature and S20 Rigid Physical Feature.

Discussion:

AF: is in favor of making A10 isA E25 in the sense that an excavation interface has been produced by some human activity. There is no contradiction there.

MD, **SdS**: fully support the proposed solution

Vote to accept CEO's proposal that **A10 Excavation Interface** be made a direct subclass of **S20 Rigid Physical Feature AND E25 Human Made Feature**:
In favor: 9
Against: 0
Decision: accepted

Re. point (a) above:

Vote to make **AP4 produced surface** [D: A1 Excavation Process Unit, R: A10 Excavation Interface] **isA P108 has produced** [D: E12 Production, R: E24 Physical Human Made Thing]
In favor: 7

Against: 0
Decision: accepted

Re point (c) above:

Vote to rename A1 Excavation Process Unit to A1 Excavation Processing Unit:
In favor: 6
Against: 0
Decision: change accepted.

Issue closed.

474: Editorial Check of CRMarchaeo
Large issue, breaks to a number of sub-tasks

Scope-notes of AP25 occurs during (includes), AP26 overlaps in time (is overlapped in time by)
Rephrasing involved –take out the reference to E52 Time-Span (HW by SdS)

Discussion points:

- the FOL for AP25 must be added to the document (HW-CEO)
- The domain and range of AP25 and AP26 have been deliberately been set to E2 Temporal Entity vs. E4 Period, as they could refer to instances of E3 Condition State
- AP25 should be made isA two temporal primitives: P185 (OK) and P176i starts after the start of (as prescribed at the migration paths offered at the appendix of CIDOC CRM v.7.1)

Vote on accepting proposed changes for AP25 and AP26:

In favor: 9
Against: 0
Decision: accept them

HW: CEO to add the FOL axiom for transitivity to AP25 AND add the missing superproperty for AP25

The revised scope notes can be found in the appendix.

Scope-note of AP7 produced (was produced by)
The SIG reviewed MD's HW (rewrite of the scope-note for AP7) and reworked the example as well.

Discussion points:

SdS: if we have access to the excavation records for Akrotiri, we might look for the ID numbers for some of the layers.

Proposal:

Vote to accept the scope-note and the example as is now and start a new issue, where to discuss the example making use of the original data from the excavation records for Akrotiri.

In favor: 7
Against: 0

Decision: accepted. The revision of the scope note and example can be found in the appendix.

Scope-Note of AP9 took matter form (provided matter to)
The text for the scope note was missing, MD put together a text.

<u>Vote</u> to accept the scope note for AP9:
In favor: 7
Against: 0

Decision: accepted, references added to the example. Details in the [appendix](#).

Label and scope-note of AP11 has physical relation (is physical relation of)

    a.   <u>Re. the label of AP11</u>:

Proposal by MD to alter the label of the property to because the property reads terrible (especially in the inverse form).

Suggested label: AP11 has physical relation to (is physically related by).

However, the inverse property does not work well in English. Long discussion, involved a **number of counterproposals**:

- AP11 has physical relation to (is physical relation with) –was considered suboptimal; it's not directed, but symmetrical.
- AP11 has physical relation to (is physical relation from) –preferred it shows direction
- AP11 has physical relation to (is physically related to) – modelled after p69 has association with (is associated with), but was generally dispreferred because it does not show the directionality.

It was suggested that the labels should be tested against the examples for AP11 and AP11.1 [(see below)](#):

    b.   <u>Re. the scope-note of AP11</u>: SIG thought it OK, following some minor editing by MD.

A <u>vote</u> was called to decide on (a) the forward label and (b) the scope note of AP11.

In favor: 7
Against: 0

Decision: the label will change to **AP11 has physical relation to** - the inverse property will be discussed in a separate issue; the **scope note** is as found in the [appendix](#).

Examples of AP11 has physical relation (is physical relation of) and *AP11.1 has type: E55 Type*
MD presented his HW.

Discussion:

SdS: The types mentioned in the .1 property examples need to be reworked. "wall-slot cut for" stands as the description of a process, not a type. A cut is the absence of something, it creates an interface. The interface was created by a wall-slot having been cut, it's not the relation, which two things stand in. In the example, the wall and the floor do not have a relation among them. It's the kind of example not to be found in records, but the justification for an interpretation of the records. This has not been observed, but inferred.

KM: There are certain things that you can observe in the field, and things that one can infer by other evidence (dating, etc.). Some of the things happen after the excavation, they are inferred; not observed.

MD: The purpose of the example is to showcase that interpretations can change, in the face of new evidence.

The proposed example was redrafted.

A <u>vote</u> was called to accept the examples:
In favor: 7
Against: 0

Decision: Accepted. For details, see appendix.

GH: he has documented the relation of layers (on top, under). Can these specific restrictions be introduced as shortcuts or properties in CRMarchaeo? Because it saves up a lot of time to be able to evoke them. The most typical relations that are documented are *over* and *under*.

MD: in building archaeology there are more relations that need to be documented.

SdS: from the perspective of the UK, much archaeology involves walls, and even though *over* and *under* are relations frequently documented, there are many other many types of physical relation documented as well. Maybe we should add more straightforward relations in the examples.

Label and examples for AP13 has stratigraphic relation (is stratigraphic relation of)
MD presented his HW.

The examples were considered OK in terms of content -they basically reprise the examples for AP11.1. However, the labels of the referred classes need to be reworked. They will be put to an e-vote. Details in the appendix. The label is to be decided via e-vote too.

Examples for AP14 justified (is justification of)
MD presented his HW. The examples need be reworked and put to an e-vote. The labels of its domain and range properties are not correct, and their form will depend on the decision reached in Issue 480; namely, Is D: AP13 or AP13.1?

In terms of how the example was formatted, the sig seemed to like it.

HW: MD to rework the examples, based on decision for 480.

Superproperty of AP5 removed part or all of (was totally or partially removed by)
Proposal: make AP5 removed part or all of (was totally or partially removed by) isA P31 has modified (was modified by):

- AP5 [D: A1 Archaeological Processing Unit, R: A8 Stratigraphic Unit]
    - A1 Archaeological Processing Unit isA: S4 Observation, S1 Matter Removal, **and** E12 Production (isA E11 Modification)
    - A8 Stratigraphic Unit (isA S20 Rigid Physical Feature isA E26 Physical Feature isA E18 Physical Thing)

Vote to accept CEO's proposal

In favor: 5
Against: 0

Decision: accepted.

Example for AP12 confines (is confined by)
CEO's HW:

- The Stratigraphic Interface "[19]" (A3) *confines* the Stratigraphic Volume Unit "(2)" (A2) [in Figure 4]

"Figure 4" refers to the Introduction of CRMarchaeo.

Vote to accept the example:
In favor: 5
Against: 0

Decision: accepted

[NEW ISSUE]

The updated example for AP7 produced (was produced by) is to a large extent fictitious, in that it does not refer to any of the actual layers of pumice and volcanic ash that covered the Akrotiri region as a result of the Thera eruption.

HW: **CB** is to contact Eleni Christaki, to get access to the original data found in the excavation reports for Akrotiri. **AK**: to update the examples accordingly

480: AP14 justified by (is justification of)

Proposal:

- **AP13.2 [D: AP13 has stratigraphic relation, R: AP11 has physical relation],** on the ground that it links properties and not classes, the .2 emphasizes that -a new property number is considered confusing because one expects it to link classes.
- **Quantification**: many to many (0:n,0,n) [for the moment]
- **Relabel to**: is justified by (is justification of)

Start a new issue on the cardinality of the property.

Vote to accept this proposal
In favor: 6
Against: 0
Decision: accepted. The details of the definition of AP13.2 is justified by (is justification of) can be found in the appendix.

[NEW ISSUE]: The cardinality of AP13.2 is justified by (is justification of)

Part of the decision for issue 480 was to discuss the cardinality of AP13.2 in a separate issue.

478: Quantification of the property AP2 discarded (was discarded into)

Proposal:

a. Fix the inconsistency of AP1 and AP2 by **deleting**
   (a) O2 removed [D: S1 Matter Removal, R: S11 Amount of Matter] from the list of subproperties of O1 diminished [D: S1 Matter Removal, R: S10 Material Substantial] AND
   (b) O1 diminished [D: S1 Matter Removal, R: S10 Material Substantial] from the list of superproperties of O2 removed [D: S1 Matter Removal, R: S11 Amount of Matter].
b. More time is needed to reach a decision re.AP2
c. Discuss adding a 3rd property

Everyone in agreement,

Decision: Resume the discussion of 478 in the next SIG meeting.

447: Embedding as a Physical Feature

CEO presented his HW –ramifications of taking the temporal aspect off A7 Embedding (i.e. make it isA S20 Rigid Physical Feature rather than E3 Condition State that it now is).

Discussion:

KM: does this allow to distinguish between a coin found lying on a surface (because that's where it fell at some point and then was embedded in a stratigraphic layer from which it was excavated) and another that was dug into a surface (deliberately)? Does this embedding capture the difference?

There is no way to give the temporal aspect of the fact that the embedding of a coin happened 2000 y. later than the day it fell on the ground for instance. If we can retrieve this temporal information by other means, then it's OK to change the definition of A7.

MD: This information can be expressed through the stratigraphic genesis (A4) that gave rise to whatever stratigraphic unit (A8) one is interested in documenting

AF: the embedding is the result of the generation of the stratigraphic generation. The physical aspect is a characteristic of the stratigraphic layers, not of the state in which an object is found with respect to a given set of stratigraphic layers. The generation of a stratigraphic volume results in a certain condition. In an excavation, given that condition, you only record the state things are found in -that's what the A7 Embedding described.

We can talk about stratigraphic units and the relation of objects found in an excavation bear with them –classes: A2, A3, A8. There is no need for yet another class to do so.

KM: Consider the Thera eruption: a coin has dropped to the floor in one of the houses, a pot is on the table and then the eruption happens and the house falls apart (on top of everything that was part of that particular household). The entire place is covered in dirt, materials used for building, volcanic ash. The pot and the coin we were talking about stand as the evidence of a period of interface; i.e. the time the volcano erupted and the walls came down covering the pot and the coin and the rest of what used to be the household.

MD: it's the where in the volumes that the objects were found. If there is a coin stuck btw two layers (if it's on the floor and the ceiling has fallen on it) then you would not typically use the class A7 Embedding to describe its location.

GH: Maybe real examples of things documented in the course of an excavation that could be modelled as instances of A7 Embedding should be consulted to ultimately resolve this issue. Do we have data that would be documented like that?

AF: he has not come across any data that would support the usefulness of A7, BUT he can consider a likely scenario. Objects found in a stratum; one could use embedding to document their relevant position/arrangement. That's a status, not a place.

MD: If the A7 Embedding isA S20 Rigid Physical Feature, then it isA E53 Place, so you can get the relevant position. It has the same frame of reference as the stratigraphic unit.

SdS: A7 showcases that a volume lies within another volume (and other topological relations). We can construct the other relations, but A7 is intended as a shortcut class, it is useful because it trims down the actual relations required to express it. No reference to coordinates or 3D Models is needed. The full path would be difficult to implement.

Vote to declare A7 Embedding isA S20 Rigid Physical Feature
In favor: 6
Against: 0
Decision: accepted

Adjusting the scope note of A7 Embedding and the properties it appears in to match its semantics will be done at a later stage.

Overall decision regarding the status of CRMarchaeo.

The document can be declared an official version of CRMarchaeo (following the implementation of the decisions we voted on).

CRMarchaeo to be managed through the CIDOC Document Manager -just like CIDOC CRM. S
HW: **SdS** to get **AF** an account for that.

Wednesday, 10 March 2021

CRMtex approval

Discussion points:

MD: assumes a skewed perspective favoring ancient texts compared to synchronic data, wrt. the notion of readability -old newspaper-archives from the modern era have the exact same problem, corroded text that does not read easily.

Graphical overview (Fig.1-2): P62 depicted by [D: E24 Physical Human Made Thing, R: E1 CRM Entity]. If the property is consistently used to specializations of the classes defined as domain and range, then this calls for a subproperty.

TXP11 transcribed [D: TX6 Transcription, R: TX8 Grapheme]: ambiguity, does not distinguish btw transcribing a single glyph and transcribing a text. Need to be taken apart. Correspondence btw glyph and grapheme is not captured.

Proposal: distinguish btw a character set of the writing system for a given language, and a grapheme sequence corresponding to their phonetic rendering (obtained through transcription). One or two more classes could be introduced to disambiguate.

TV: the template has not been followed consistently, must be updated.

OE: you cannot start with an all encompassing model for epigraphy that deals with all writing systems at all times. It would by default be under-informative and ambiguous. You should best start small, some languages or some writing systems and gradually extend it to other languages with different writing systems and see how well it fares and what it takes for it not to break. Explicitly list what has been studied, what has informed the model.

Re. the emphasis on "ancient" text: it's not clear why modern written text should be excluded. The evolution of writing systems was not uniform across the world, there have been late developments, documented in the 19th century even, which might shed some light into the processes that possibly occurred in the ancient world.

AF: The model started from epigraphy, and then expanded to the written text as a whole. The scope of CRMtex must be redefined. As for the ambiguity of the graphemes, harmonic phenomena (in Semitic and Arabic languages), or other peculiarities of the writing systems (tone, accent, aspiration) make it impossible to produce a uniform representation of what a grapheme is.

Proposal: accept this version as a draft extension of the CIDOC CRM, and then form a group to review it and work on the issues identified thus far (and others that will come up).

<u>Vote</u> to approve it as an extension to the CRM family:
In favor: 10
Against: 0

Decision: accepted.

People interested to participate in the discussion (besides **AF**, **FM**):
- **GH** (project for medieval sources, involves automated transcriptions of handwritten text, would like to test the model on his data. Also, knows a lot of linguists),
- **OE** also interested (by proxy),
- **PW** could help with Chinese.
- **MD** wants to participate

368: Concept of inscription in the epigraphic sense
AF proposed to close the issue, there is nothing left to do.

(1) The problem that they originally wanted to resolve was harmonizing E34 Inscription with the understanding of inscriptions modelled in CRMtex. E34 used to refer to short texts, whereas common practice of inscriptions show that the length of the texts found in inscriptions can be of an arbitrary length. The restriction that E34 describes short texts has been lifted, so this is no longer an issue.
(2) Another problem that came up was that inscription is a polysemous word, expressing [at least] the following distinct senses (a) the physical feature; (b) the arrangement of symbols on the inscription; (c) the text it encodes –i.e., the linguistic meaning it renders. These can be modelled through (a) TX1 Written Text, (b) TX10 Style, and (c) E33 Linguistic Object or E34 Inscription, respectively. There is nothing left to do for that either.

Discussion:

MD: seconded closing the issue. Would like the SIG to benefit from the experience of dealing with the modelling of a polysemous term. Proposed that AF takes HW present this case an example for the Modelling Principles document.

Vote to close the issue:
In favor: 9
Against: 0
Decision: close the issue, start a [new issue](#) regarding how to deal with polysemous concepts as ontological classes

[NEW ISSUE]: polysemous concepts as ontological classes -how to disambiguate.
Upon discussing issue 368, it was suggested that AF redraft the use case of unpacking the polysemous concept of "inscription" into semantically distinct classes, to be added to the Modelling Principles document.

HW: **AF**

519: Keep or deprecate P54 has current permanent location AND P48 has preferred identifier
The SIG reviewed arguments in favor and against the deprecation of P54 and P48.

RS made the case in favor of deprecating them as their semantics can be rendered through E55 Type. He also suggested each deprecation to be decided upon separately.

P54 has current permanent location:
SdS opposed to deprecating P54 on the grounds that it has nothing to do with the actual location of objects in the museum; rather it has to do with where the objects are logged in, to support a function within museum documentation practice.

RS: That was what motivated his original proposal to introduce Pxxx has current permanent custodian, but his proposal was rejected. It's like assuming double standards.

MD: the two things are not comparable. Similarities in the logical pattern does not entail the introduction or deprecation of properties. There is some nesting involved to Pxx current permanent custodian that perplexes the

situation that does not apply in the case of P54. So they are entirely different things. That something is used in museum practices is not an argument in and of itself, because CIDOC CRM is not restricted to documenting museological practices exclusively.

SdS: Core data properties and SPECTRUM have the current permanent location. It's about where things are meant to be, not about where they are. It relates to .3 properties (to document the temporal validity of properties), an issue that needs we need to reprise once we're done with CIDOC CRM 7.1.

Vote on keeping P54 current permanent location
In favor: 4
Against: 0
Decision: Keep P54 current permanent location in the CRM

P48 has preferred identifier

MD: default authority on assigning preferred identifiers is the institutions that hold the objects.

PR: LRM identifiers used as a kind of Nomen, Nomen Use Statements and their status in a system. This way you can get provenanced statements.

Proposal: Keep the issue open; reformulate the scope note of P48 and try to find reasonable objective criteria for declaring identifiers as preferred.

Vote on the proposal:
In favor: 7
Against: 0
Decision: P48 kept in the model.
HW to **RS** and **PR** to provide evidence on preferred identifiers and who has the authority to declare an identifier the preferred one. If nothing of the sort can be found, maybe see if we can draw on LRMoo to express this.

476: Pxx represents entity of type

The sig reviewed RS's HW (scope-note and examples for Pxx represents entity of type).

Discussion points:

- We don't talk about entities in the CRM. It's instance, item or particular. Here probably *instance*.
- Full path not according to the template.
- If Pxx represents entity of type isA P138 represents, then it inherits the .1 property, we don't need to declare a separate subproperty for that.

TV: typed properties for the CRM. When the extension for typed properties is ready, there will be some replication. We might want to consider moving it to the extension.

Proposal: Vote to introduce Pxx represents entity of type to the CRM (v7.2) following the editing by RS.
In favor: 8
Against: 0
Decision: accept this property in CIDOC CRM v7.2. The scope-note and examples will be edited by RS as discussed, and will be voted for separately, on the last day of the 49th CIDOC CRM SIG meeting.

[NEW ISSUE]

If there is a .1 property in a long path, how does this translate into a shortcut?

Motivation: Pxx represents entity of type is a shortcut for *E36 –P138: E1 –P2: E55* AND a subproperty of *P138*, so it can use the *.1 mode of representation*

P62 depicts is a shortcut for E24-P65: E36 –P138: E1 but **NOT** a subproperty thereof

[Procedure]

Parallel work on CIDOC CRM v7.1.1 (the version that will ensue from the editing process) and CIDOC CRM v7.2. Incorporate any changes implemented in 7.1.1, to 7.2 as well.

This does not affect changes that we have agreed to go to the official version.

524: Reformulate the scope notes O O19 and O21.

Proposal: Vote on the new scope notes (HW by RS) and add FOL axioms to incorporate presence and embedding of things (HW to MD)

Vote on the proposal:
In favor: 9
Against: 0
Decision: the reformulated scope notes are accepted. Details in the appendix.

HW: MD to rework the FOL axioms for the properties

407: Ordinal property for E55 Type

Proposal: Add a number to *Oxx is conceptually greater than* and close the issue

Vote on the proposal:
In favor: 10
Against: 0
Decision: Accepted

We should update issue 294 (on imposing restrictions to instances of E55 Type) with what the relations among types can be, taking into consideration skos and other standards.

Issue closed

518: How do we interpret periods in the CRM

MD presented HW –description of the Early Helladic II Period and the Early Helladic III Period.

Proposal: to consider a settlement one instance of activity.

GH: why would you make a E4 Period part of an E7 Activity?

MD: In the example proposed, Lerna I would be a period within the settlement activity of Lerna A-B-C.

HW: MD to formulate explicit examples.

529: Deprecation of FRBRoo F20 and F25

Migration guideline for deprecated F25 Performance Plan points to E100 Activity Plan, which has moved to CRMsoc. CRMsoc is not in a stable form yet.

Proposal: for F25, use E29 Design or Procedure (also include a pointer to socE2 Activity Plan)

TV: establishing dependencies across models is not a problem in and of itself. What seems to be the problem is that CRMsoc is a draft version for the moment.

MD: the distinction between an Activity Plan and an E29 Design or Procedure is not substantial to what the model can express. It is an easy fix, to change the migration path to E29. However, the fact that this is considered a problem, indicates that maybe F25 was a poorly understood class.

360: LRMoo

IFLA namespace for FRBRoo (but v2.2, which means that some changes must be made to update to 2.4) and LRMer (https://www.iflastandards.info/).

RDF for LRMoo: It can be easily done as long as one can use the IFLA namespace (it should be (set it to lrmoo) by incorporating a core set for elements that are decided upon. Make an announcement on the sig list. Also make sure that the CRMsite links to the IFLA definitions.
HW to **TA**.

Property scope notes that need to be modified:

R3 realised:
Proposal: push examples of deprecated subproperties (R12, R13) to R3; slightly edit the scope note.

Vote on the proposal:
In favor: 9
Against: 0
Decision: accepted. Details in the appendix.

HW: **PR** to fix the property labels and referred classes in the examples.

R18 created (was created by)
Proposal: modify scope note to reflect that its range class has been reduced to F5 Item from the now deprecated F4 manifestation Singleton.

Vote on the proposal:
In favor: 9
Against: 0
Decision: accepted. Details in the appendix.

R26 produced things of type (was produced by)
Reformulation of the scope note of P26 to reflect the correct range (HW by PR)

Discussion:

- The range of P26 produced things of type is E99 Product Type, but we expect that every range instance is multiply instantiated as F3 Manifestation as well.
- If at every instance of this property, the range has to be BOTH E99 AND F3 Manifestation, then isn't this a case where a new class has to be introduced the extension of which lies in the intersection of the two classes?

Proposal:

- introduce a new class that is declared isA E99 Product Type AND isA F3 Manifestation. Much thought has to be put on the label of the class.
- The scope-note should explicitly refer to the link of the F32 Carrier Production Event that produced an instance of F5 Item that *R7 is materialization of* an F3 Manifestation (and a product type). OR
    - connect the F32 Carrier Production Event to the F3 Manifestation it *R27 materialized*

HW: **PR** to reformulate, also edit F32 Carrier Production Event to explicate the use of P26 vs P27.

Decision: to be discussed again after the editing.

P27 materialized (was materialized by)
Proposal: modify scope note (HW by PR).

Vote on the proposal:
In favor: 8
Against: 0
Decision: accepted. Details in the appendix.

Applying the LRM model to integrate resources (MZ, TA)

Presentation by TA.

Discussion:

MD: Similar work in the context of the Parthenos project –integration of research infrastructures and data aggregation systems. The solution that was opted for was to distinguish among volatile vs. persistent digital objects. The timestamp is persistent and it serves as the identity of the object. The Parthenos Entities Model is not on the website this moment. To be added there.

TA: from the perspective of LRM the process of updating a resource is irrelevant. Only the last version is of interest.

SdS: A side-project at Delving is to produce a repository, which allows to reconstruct the state of affairs at any point in time. It tracks every change dynamically, as part of the process and all of that is held as CRM data. The intention is to dynamically recreate snapshots when necessary.

MZ: LRM is only interested in the last version that is available. Which has implications on the modelling of Serials. It is not the same mechanism.

HW: **TA**, **MZ**, and **MD** to work together on that, MD to share with them the last updated model of Parthenos EM.

Thursdsay, 11 March 2021

Sakiko Kawabe, Akihiro Kameda & Makoto Goto (NMUH):

Documentation of Ethnographical Object Biography using CIDOC CRM (presentation)

Discussion points:

MD: if SK can share the slides, he will go through them and propose solutions according to previous decisions. Proposed the formation of a working group within the SIG and discuss the possibility of extending the CRM with ethnographical modelling.

When modelling the use of an object in a particular event, they can use participation properties to link them. For the digitization of texts engraved/ written on objects one can make use of the newly accepted model CRMtex and steal a few classes and properties from that.

A question re. the use of PROV-O. Is it a decision of interoperability? Do you need to incorporate elements from both PROV-O and CRM in your ontology? We have discussed in the past the possibility of a mapping btw PROV-O and the CRM, so that could be a line of work for the WG.

SdS: certain things in the presentation look like categorical statements. It's something that keeps appearing in documentation systems that make use of this kind of construct, maybe it's time to deal with it.

AF: the use of things is something that definitely needs to be extended in the CRM. Wants to participate in the discussion.

Decision: SIG members to participate in the discussions with SaKa, AkKa, MaGo: MD, OE, AF, NC

Emilio M. Sanfilippo (CNR):
Taking CIDOC apart: Exercise in modularization and future steps (presentation)

Discussion points:

MD: would it be possible for users to pick up concepts useful for data entry? can we provide an automated mechanism that would complement the profile with the concepts necessary? What he aims for, is a reasoning mechanism that would allow transitive closure of the model, given a set of selected concepts on the part of the user. If ES would like to carry on this line of work, maybe we could form a WG?

ES: this is looking ahead a bit too far, in terms of rendering the selection of ontological patterns useful to the CRM users. He is more interested in uncovering said patterns, so that is what his work is focused on. What MD proposed is extremely interesting but it's not something that can be accomplished with minimal effort. It requires time, research, effort and funds.

DO: defining the ontological patterns felt a bit top-down. Unsure what the use case that dictates this pattern over another is. Especially if one wants to assume a bottom up approach.

ES: one can selectively reuse some patterns (part of the ontology). If the focus is on features of human made objects, then we can filter out actors, temporal information etc. You can start by working with relevant subparts of the ontology but also consider the overall structure thereof.

Decision: DO to provide some use cases, ES, NC, PM, CEO, MD to collaborate.

Philippe Michon (CHIN):
The Canadian Heritage Information Network's Target Model and Semantic Paths Specification: Facilitating the understanding of CIDOC CRM for Canadian Museum Institutions (presentation)

ES: different efforts towards developing patterns within the community. It could lead to a duplication of the effort, which calls for a more collaborative approach.
Why not use UML to express the CRM classes and properties?

MD: UML is not precisely fitting for expressing the CIDOC CRM (f.i. attributes model is quite different. 3 forms of relationships and attributes). If it were possible to restrict UML to just one type of relations that is relevant for CRM it would be worth it.

PM: would like to automate the process, any recommendations for tools/guidelines etc are well-received.

OE: I think for developers and other uses it could be interesting to look into the relationship between the CRM family and the Open Modelling Group (OMG) work, including the UML family of languages.

Follow-up: MD, PM, MD

Athina Kritsotaki (FORTH):

Mapping non-workflow models to CIDOC CRM-based, event-centric, ontologies; the case of SSHOCro ([presentation](#))

[NEW ISSUE]: documenting the changes in the CRM.

Background: changes in the model are backed by empirical evidence. However, once they have been implemented, it's not easy to recover the thought process that motivated them in the first place. Documenting a decision does not guarantee that decisions provided are understood. We need an application to keep track of that. Difficult to formulate and summarize issues. That's why we also document email exchanges.

We might require that for any given solution we propose (and accept) we also provide supporting material.

GB: there are the minutes of the CRM-SIG meetings, the issues that are discussed through the mailing list and are also available on the website that can help contextualize any decisions reached. Furthermore, the group at LARHRA have developed OntoME that can do versioning.

FB: A place to document versions: https://ontome.net/

George Bruseker (Takin.solutions):

CRMsoc: Model for Social Phenomena ([presentation](#))

Discussion points:

MD: there is no link from collectives to individuals acting within these collectives in the model. It is important to be able to reason about that relation. The definition of a collective is also of paramount importance.

DO: How is the model tested? what kind of use cases are used for it? He would like to contribute, his current work suggests that the approach undertaken seems a bit too reductive (PhD in History using Knowledge Representation).

GB: Use cases from CHIN; LARHRA ([symogih](#)); work GB is doing in Zurich.

Decision: **NC**, **GH** (data from two ongoing projects), **DO** to collaborate with the team working on CRMsoc.

Plan summer and autumn 2021 meetings of the CIDOC CRM SIG

Share the doodles with the sig list again by the end of the month and set deadlines for submitting one's answer.

Are there conflicting events? That would help us rule out any bad days. Late June seems fixed (22-25 June) –but it coincides with the IIIF Annual Conference.

Resend the doodles.

476: Pxx represents entity of type (continued)

Discussion points:

It must be made clear in the examples that there was a model object represented by the particular E36 Visual Item, and that it served as a type (remains unidentified). For an example instantiating the property *represents instance of type* woman (E55), there must have been a very specific woman that the statue is shaped to look like.

Distinguish btw representing an unknown particular and representing a concept. The property should only be used when one wants to document that an instance of E36 Visual Item represents an unknown particular of a given type. More examples are needed to make that crystal clear.

The examples should mainly involve photographs. That a photo represents an instance of owl, means that the identity of the particular bird is unknown. But there must have been a photographed object of type owl.

Proposal: Vote for the scope note and the first example, start a new issue on the other examples

Vote on the proposal:
In favor: 9
Against: 0

Decision: Pxx represents instance of type (scope note and 1st example are introduced in the model CIDOC CRM v7.2. The scope-note and examples can be found in the appendix. It still needs to be assigned a number.

Decision: additional examples for Pxx represents instance of type will be discussed in a new issue
HW: **MD** to come up with more examples, **RS** will collaborate.

[NEW ISSUE] examples for Pxx represents instance of type
A new issue where to discuss additional examples for the newly added property.

360: LRMoo
The sig reviewed PR's HW (reformulation of R26 produced things of type, and ramifications for F32 Carrier Production event).

Proposal: Vote on the reworked scope notes
In agreement: 9
Against: 0
Decision: Accepted. The reformulated scope note for R26 and F32 can be found in the appendix.

511: Measurement and dimensions
Proposal: Reduce the range of P39 from
- E16 Measurement. P39 measured (was measured by): **E1 CRM Entity** to
- E16 Measurement. P39 measured (was measured by): **E18 Physical Thing**.

The change is considered for CIDOC CRM v7.1.1 (updated official version).

- The ensuing problem (one cannot measure instances of E53 Place, or instances of E2 Temporal Entity using P39 any more) is to be resolved by introducing properties like P43 has dimension but for places and periods (to be implemented in v7.2).
- There are also implications for CRMsci (i) S21 Measurement, (ii) S15 Observable Entity and (iii) the relation btw O24 measured & P39 measured, and O12 has dimension and P43 has dimension.

Discussion points:

FB: allowing non-monotonic reasoning can be a problem. Also, fails to see why one shouldn't be measuring duration in time, or the monetary value of a collection of coins.

MD: measuring duration in time, involves observing a time-measuring device. Time has no physical dimension. Reasoning about observable entities that are non-physical falls in the scope of CRMsci.
E13 Attribute Assignment allows for assigning dimensions to anything by procedures and to things others than those described by E16 Measurement

Proposal: call for a vote to determine whether the issue is mature enough to be resolved through a vote.

In favor: 6

Against: 1

Decision: Proceed with the vote to reduce the range of P39 measured

<u>Vote</u> on reducing the range of P39 measured (was measured by) from E1 CRM Entity to E18 Physical Thing for CIDOC CRM v7.1.1 (the official version that will incorporate editorial changes decided in the course of the 49th SIG meeting).

In agreement: 7

Against: 1

Decision: Accepted;

- the scope note will be updated accordingly and put to an e-vote.
- E16 Measurement needs to be checked as well (list of outgoing properties needs be updated f.i.).
- The migration path from old to new version of P39 also needs to be updated.
- The two new properties (assigning dimensions to places and temporal entities) are intended for CIDOC CRM v7.2. They might even not be made part of CRMbase and be introduced to CRMgeo (for places) or CRMsci instead. To be discussed in a new issue.
- Implications for CRMsci to be discussed in a new issue

HW: **MD** & **RS** to edit the scope note of E16, P39, check the FOL representations.

Suggestion by OE since we are updating the scope note of E16 Measurement, maybe we could say a few things about the methodology of measuring things (not only via GPS but also manually).

[NEW ISSUE]: introduce properties for assigning dimensions to places and temporal entities

- Pxx has dimension [D: E53 Place, R: E54 Dimension] (and position in the CRM universe),
- Pxx has dimension [D: E2 Temporal Entity, R: E54 Dimension] (and position in the CRM universe)

HW: **MD, RS, MaDo**

[NEW ISSUE]: implications of reducing the range of P39 measured (was measured by) for CRMsci

Things to go over:

- E16 Measurement isA S21 Measurement
- P39 measured (was measured by) isA O24 measured (was measured by)
- O12 has dimension (is dimension of) ≡ P43 has dimension (is dimension of), for S10 Material Substantial (and subclasses)

HW: **MD, RS**

388: Reference to the measurement of the position of things

MD shared his HW (scope note of Sxx Position Measurement) with the SIG. There was no objection to it content-wise.

There was no time for discussion. Postponed until the next SIG meeting.

HW: SdS will collaborate with **MD**.

Appendix

List of abbreviated names

AC	Anastasiia Cherednychenko	Ukrainian Centre for Museum Development, UA
AF	Achille Felicetti	PIN/University of Florence, IT
AG	Anais Guillem	University of California Merced, US
AK	Athina Kritsotaki	ICS-FORTH, GR
AkKa	Akihiro Kameda	National Museum of Japanses History, JP
ArK	Artem Kozlov	ResearchSpace/ BM, UK
CB	Chrysoula Bekiari	ICS-FORTH, GR
CEO	Christian-Emil Ore	University of Oslo, NO
DN	Denitsa Nenova	Takin.solutions, BU
DO	Dominic Oldman	ResearchSpace/ BM, UK
ES	Emilio Sanfilippo	Consiglio Nazionale delle Ricerche, IT
FB	Francesco Beretta	LARHRA, FR
FM	Francesca Murano	Universita di Firenze, IT
FN	Franco Nicolucci	PIN, IT
GB	George Bruseker	Takin.solutions BU
GH	Gerald Hiebel	Universität Innsbruck, AT
KM	Keith May	Historic England, UK
M.H-U	Maribel Hidalgo-Urbaneja	University of the Arts-London, UK
MaGo	Makoto Goto	National Museum of Japanses History, JP
MDo	Maliheh Dorkhosh	Ferdowsi University Masshad, IR
ML	Matteo Lorenzini	ETH Zürich, CH
MN	Massoomeh Ninkia	Kharazami University, IR
MZ	Maja Žumer	University of LjublJana, SI
NC	Nicola Carboni	University of Geneva, CH
OE	Øyvind Eide	Universität zu Köln, DE
PG	Paul Goodwin	University of the Arts-London, UK
PM	Philippe Michon	Canadian Heritage Information Network, CA
PR	Pat Riva	Concordia University, CA
PW	Puyu Wang	Shanghai Normal University, CN
RS	Rob Sanderson	J Paul Getty Trust/Yale University, US
SaKa	Sakiko Kawabe	National Museum of Japanses History, JP
SdS	Stephen Stead	Paverprime Ltd, UK
SjS	Sjoerd Siebinga	Delving B.V., NL
TA	Trond Aalberg	OsloMet, NU
TV	Athanasios Velios	University of the Arts-London, UK

Amendments

522: Identification of Visual Items

Change of scope note for E36 Visual Item and addition of a new example:

FROM (original):

This class comprises the intellectual or conceptual aspects of recognisable marks, and visual images.

This class does not intend to describe the idiosyncratic characteristics of an individual physical embodiment of a visual item, but the underlying prototype. For example, a mark such as the ICOM logo is generally considered to be the same logo when used on any number of publications. The size, orientation and colour may change, but the logo remains uniquely identifiable. The same is true of images that are reproduced many times. This means that visual items are independent of their physical support.

The class E36 Visual Item provides a means of identifying and linking together instances of E24 Physical Human-Made Thing that carry the same visual symbols, marks or images etc. The property *P62 depicts (is depicted by)* between E24 Physical Human-Made Thing and depicted subjects (E1 CRM Entity) is a shortcut of the more fully developed path from E24 Physical Human-Made Thing through *P65 shows visual item (is shown by)*, E36 Visual Item, *P138 represents (has representation)* to E1CRM Entity, which in addition captures the optical features of the depiction.

TO (revised):

This class comprises the intellectual or conceptual aspects of recognisable marks, images and other visual works.

This class does not intend to describe the idiosyncratic characteristics of an individual physical embodiment of a visual item, but the underlying prototype. For example, a mark such as the ICOM logo is generally considered to be the same logo when used on any number of publications. The size, orientation and colour may change, but the logo remains uniquely identifiable. The same is true of images that are reproduced many times. This means that visual items are independent of their physical support.

The class E36 Visual Item provides a means of identifying and linking together instances of E24 Physical Human-Made Thing that carry the same visual qualities (symbols, marks or images etc.). The property *P62 depicts (is depicted by)* between E24 Physical Human-Made Thing and depicted subjects (E1 CRM Entity) is a shortcut of the more fully developed path from E24 Physical Human-Made Thing through *P65 shows visual item (is shown by)*, E36 Visual Item, *P138 represents (has representation)* to E1CRM Entity, which in addition captures the optical features of the depiction.

NEW EXAMPLE

The surface shape of Auguste Rodin's statue "Le Penseur" [there exist more than 20 copies, even of different size. Therefore, this is a good example that it is only the common surface shape, an immaterial visual item, which justifies displaying these copies as works of Auguste Rodin. As usual practice, Rodin himself did not produce the bronze statue, but only the prototype model]

294: E55 Type relations

The following are working definitions, SdS will be editing them.

AP29 appears in

Domain: E55 Type
Range: E4 Period
Subproperty:
Quantification: many-to-many (0,n:0,n)

Scope note: This property associates a kind of object (documented as an instance of E55) to an instance of E4 Period for indicating that objects of this kind have been generated within this period. The generation of such objects may be the result of human, biological, geological or other processes.

This property makes a weak statement with regards to the distribution of the class of object in the archaeological record, but also in geological or paleontological observations: If the genesis of an object of this type can plausibly be assumed to fall within the genesis of the context in which it was found, then the statement made with this property would support reasoning, ceteris paribus, that the genesis period of the find context forms part of or overlaps with one of the instance of E4 Period in which the respective object type has appeared.

Stronger claims can be made using 'typical for' and 'restricted to' properties.

AP30 restricted to

Domain: E55 Type
Range: E4 Period
Subproperty: appears in
Quantification: many-to-many (0,n:0,n)

Scope note: This property associates a kind of object (documented as an instance of E55) to an instance of E4 Period for indicating that objects of this kind have exclusively been generated in this period.

This property makes a strong statement concerning the distribution of the kind of object in the observation record: If the genesis of an object of this type can plausibly be assumed to fall within the genesis of the context in which it was found, then the statement made with this property would support reasoning, ceteris paribus, that the genesis period of the find context actually forms part of the related instance of E4 Period, or at least overlaps with it.

In contrast, objects from previous periods may appear in a context because they are still in use, and objects from later periods may have been pushed into an older context.

Weaker claims can be made using the properties 'typical for' and 'appears in'.

In First Order Logic:

[…]

AP30(x,y) ∧ AP30(x,z) ⇒ P132(y,z)

AP31 typical for

Domain: E55 Type
Range: E4 Period
Subproperty: appears in
Quantification: many-to-many (0,n:0,n)

Scope note: This property associates a kind of object (documented as an instance of E55 Type) to an instance of E4 Period for indicating that objects of this kind have been generated in this period in significantly higher numbers and wider distribution, than in other periods.

This property makes a moderate statement concerning the distribution of the kind of object in the observation record: If a sufficient number of objects of this type are found in some context, and their genesis can plausibly be assumed to fall within the genesis of the find context, then the statement made with this property would support reasoning, ceteris paribus, that the genesis period of the find context is likely to forms part of the related instance of E4 Period, or at least overlaps with it. "Sufficient number" means that the density of objects of this kind in the find context is compatible with the general density this kind of object had in the respective period in comparable contexts and deposition history.

A stronger claim can be made using 'restricted to' while a weaker claim is made using 'appears in'.

474: Editorial Check of CRMarchaeo

a) *Scope notes of AP25 occurs during (includes) and AP26 overlaps in time with (is overlapped in time by)*

The scope note of AP25 occurs during (includes) changed

AP25 occurs during (includes)

Domain: E2 Temporal Entity
Range: E2 Temporal Entity
Subproperty of: E2 Temporal Entity.P185 ends before the end of (ends after the end of):E2 Temporal Entity

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

Scope note: This property identifies a situation in which the entire instance of E52 Time-Span of an instance of E2 Temporal Entity is within the instance of E52 Time-Span of another instance of E2 Temporal Entity that starts before and ends after the included temporal entity.

     This property is only necessary if the time span is unknown (otherwise the relationship can be calculated). This property is the same as the "during / includes" relationships of Allen's temporal logic (Allen, 1983, pp. 832-843).

     This property is transitive.

Example: Middle Saxon period (E4) *occurs during* Saxon period (E4)

In First Order Logic:

$$AP25(x,y) \supset E2(x)$$
$$AP25(x,y) \supset E2(y)$$
$$AP25(x,y) \supset P185(x,y)$$

AP25 occurs during (includes)

Domain: E2 Temporal Entity
Range: E2 Temporal Entity
Subproperty of: E2 Temporal Entity.P176 starts before the start of (starts after the start of): E2Temporal Entity
                 E2 Temporal Entity.P185 ends before the end of (ends after the end of):E2 Temporal Entity

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

Scope note: This property identifies the situation in which the entire temporal extent of an instance of E2 Temporal Entity is within the temporal extent of another instance of E2 Temporal Entity that starts before and ends after the included temporal entity.

     This property is only necessary if the time span is unknown (otherwise the relationship can be calculated). This property is the same as the "during / includes" relationships of Allen's temporal logic (Allen, 1983, pp. 832-843).

     This property is transitive.

Example: Middle Saxon period (E4) *occurs during* Saxon period (E4)

In First Order Logic:

$$AP25(x,y) \supset E2(x)$$
$$AP25(x,y) \supset E2(y)$$
$$AP25(x,y) \supset P185(x,y)$$

The scope note of AP26 overlaps in time with (is overlapped in time by) changed

FROM (original)

AP26 overlaps in time with (is overlapped in time by)
Domain: E2 Temporal Entity
Range: E2 Temporal Entity
Subproperty of: E2 Temporal Entity.P176 starts before the start of (starts after the start of): E2 Temporal Entity
                 E2 Temporal Entity.P185 ends before the end of (ends after the end of):E2 Temporal Entity

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

Scope note: This property identifies a situation in which there is an overlap between the instances of E52 Time-Span of two instances of E2 Temporal Entity.

                 It implies a temporal order between the two entities: if A overlaps in time B, then A must start before B, and B must end after A. This property is only necessary if the relevant time spans are unknown (otherwise the relationship can be calculated).

                 This property is the same as the "overlaps / overlapped-by" relationships of Allen's temporal logic (Allen, 1983, pp. 832-843).

Example: the Iron Age (E4) *overlaps in time with* the Roman period (E4)

In First Order Logic:

$$AP26(x,y) \supset E2(x)$$
$$AP26(x,y) \supset E2(y)$$
$$AP26(x,y) \supset P176(x,y)$$
$$AP26(x,y) \supset P185(x,y)$$

TO (revised)

AP26 overlaps in time with (is overlapped in time by)
Domain: E2 Temporal Entity
Range: E2 Temporal Entity
Subproperty of: E2 Temporal Entity.P176 starts before the start of (starts after the start of): E2 Temporal Entity

                 E2 Temporal Entity.P185 ends before the end of (ends after the end of):E2 Temporal Entity

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

Scope note: This property identifies a situation in which there is an overlap between the temporal extents of two instances of E2 Temporal Entity.

                 It implies a temporal order between the two entities: if A overlaps in time B, then A must start before B, and B must end after A. This property is only necessary if the relevant time spans are unknown (otherwise the relationship can be calculated).

This property is the same as the "overlaps / overlapped-by" relationships of Allen's temporal logic (Allen, 1983, pp. 832-843).

Example: the Iron Age (E4) *overlaps in time with* the Roman period (E4)

In First Order Logic:

$$AP26(x,y) \supset E2(x)$$
$$AP26(x,y) \supset E2(y)$$
$$AP26(x,y) \supset P176(x,y)$$
$$AP26(x,y) \supset P185(x,y)$$

b) *Scope-note of AP7 produced (was produced by)*

The scope note changed

FROM (original)

AP7 produced (was produced by)
Domain: A4 Stratigraphic Genesis
Range: A8 Stratigraphic Unit
Subproperty of: O17 generated

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

Scope note: This property identifies the A8 Stratigraphic Unit that was produced during an A4 Stratigraphic Genesis Event.

Examples:

The layers of pumice and volcanic ash, about one metre thick, covering the ancient city of Akrotiri (A8) *was produced by* the explosion of the ancient Santorini's volcano (A4) (see Fig. 5, 8).

In First Order Logic:

$$AP7(x,y) \supset A4(x)$$
$$AP7(x,y) \supset A8(y)$$
$$AP7(x,y) \supset O17(y)$$

TO (revised)

AP7 produced (was produced by)
Domain: A4 Stratigraphic Genesis
Range: A8 Stratigraphic Unit
Subproperty of: O17 generated

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

Scope note: This property identifies an instance of A8 Stratigraphic Unit that was produced by an instance of A4 Stratigraphic Genesis. One instance of A4 Stratigraphic Genesis may produce more than one instance of A8 Stratigraphic Unit.

Examples:

The Thera eruption (ca. 1600BCE) (A4) produced layers of pumice and volcanic ash that covered the ancient city of Akrotiri (A8) [see Fig.5, 8] (Doumas, 2015).

In First Order Logic:

$$AP7(x,y) \supset A4(x)$$

$$AP7(x,y) \supset A8(y)$$
$$AP7(x,y) \supset O17(y)$$

Work cited:
(Doumas, 2015)

Doumas, C. (2015). "The Bronze Age on Thera", in *Akrotiri, Thera, 17th century BC, A cosmopolitan harbour town 3,500 years ago*. Paris, 30 October 2013. Edited by Society for the promotion of studies on prehistoric Thera, pp. 6-26, pl. 1.24. Athens: Kathimerini S.A

c) AP9 took matter from (provided matter to) -missing scope note

The definition of AP9 changed

FROM (original)
AP9 took matter from (provided matter to)

Domain: A4 Stratigraphic Genesis
Range: S10 Material Substantial
Superproperty of: O18 altered (was altered by)

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

Scope note: The slabs from the collapse of the upper storey's paved floor of Room 5 of West House in ancient Akrotiri (S10) *provided matter to* the formation of two slab deposit layers on the ground floor (A4).

Example:

In First Order Logic:
$$AP9(x,y) \supset A4(x)$$
$$AP9(x,y) \supset S10(y)$$
$$AP9(x,y) \supset O18(x,y)$$

TO (revised)
AP9 took matter from (provided matter to)

Domain: A4 Stratigraphic Genesis
Range: S10 Material Substantial
Subproperty of: O18 altered (was altered by)

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

Scope note: This property associates an instance of A4 Stratigraphic Genesis with an instance of S10 Material Substantial, from which matter was incorporated in the instance of A8 Stratigraphic Unit produced by this genesis.

                        The instance of A8 Stratigraphic Unit produced by an instance of A4 Stratigraphic Genesis can be documented by using the property *AP7 produced (was produced by)* and should be distinct from the instance of S10 Material Substantial from which matter was taken. The latter instance will be modified or cease to exist due to this genesis process.

Example: The formation of two slab deposit layers on the ground floor of Room 5 of the West House in ancient Akrotiri (A4) *took matter from* The slabs of the collapsed upper storey's paved floor (Michailidou, 2001; 68-70)

In First Order Logic:
$$AP9(x,y) \supset A4(x)$$
$$AP9(x,y) \supset S10(y)$$

$$AP9(x,y) \supset O18(x,y)$$

Work cited:

(Michailidou 2001): Michailidou, A. (2001). *Akrotiri Thiras. I meleti ton orofon sta ktiria tou ikismou*. BAE 212, Athina: I En Athines Archaeologiki Eteria.

d) Scope-note of AP11 has physical relation (is physical relation of)

The definition of AP11 changed

FROM (original)

AP11 has physical relation (is physical relation of)

Domain: A8 Stratigraphic Unit
Range: A8 Stratigraphic Unit

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

Scope note: This property identifies the physical relationship between two A8 Stratigraphic Units. The type of physical relationships found between stratigraphic units in archaeological documentation is documented through the property AP 11.1 has type

Example   The layer of burned remains of the log building (in Søndre gate, Trondheim, Norway) (A8) *has physical relation (is physical relation of) under* the foundation of the church of St. Clements (A8).

In First Order Logic:
$$AP11(x,y) \supset A8(x)$$
$$AP11(x,y) \supset A8(y)$$
$$AP11.1\,(x,y,z) \supset [AP11\,(x,y) \wedge E55(z)]$$

Properties: AP11.1 has type: E55 Type

TO (revised)

AP11 has physical relation to (is physically related from)

Domain: A8 Stratigraphic Unit
Range: A8 Stratigraphic Unit

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

Scope note: This property identifies the physical relationship between two A8 Stratigraphic Units. The described relationship may be between two adjacent instances of A2 Stratigraphic Volume Unit sharing a common interface (instance of A3 Stratigraphic Interface), between an instance of A2 Stratigraphic Volume Unit and one of its adjacent interfaces, such as human-made cuts or earthquake induced faults, or even between two intersecting interfaces.

The type of physical relationships found between stratigraphic units in archaeological or geological documentation is documented through the property AP 11.1 has type. The type applies to the direction from the domain to the range of the property *AP11 has physical relation to (is physically related from).* The type of physical relationship typically constitutes strong evidence for the sequence of genesis of the related stratigraphic units, which can be documented by the property AP13 *has stratigraphic relation to (is stratigraphically related by).* The type may either pertain to a relative topology, such as the one being "under" the other, or to the fine-structure of the interface between them, such as a layer of concrete having filled out earlier micro-cavities in various directions in the interface before solidifying.

Example   The layer of burned remains of the log building (in Søndre gate, Trondheim, Norway) (A8) *has physical relation (is physical relation of) under* the foundation of the church of St. Clements (A8).

The floors at B of the building 1 in Çatalhöyük, Turkey (A8) *has physical relation to* wall C (A8) *has type* runs up to (E55) [as observed initially] (Hodder 1999)

The wall C of the building 1 in Çatalhöyük, Turkey (A8) *has physical relation to* the floors at B (A8) *has type* inserted by cut (E55) [as observed finally] (Hodder 1999)

The wall C of the building 1 in Çatalhöyük, Turkey (A8) *has physical relation to* wall D (A8) *has type* abuts on (E55). (Hodder 1999)

The wall D of the building 1 in Çatalhöyük, Turkey (A8) *has physical relation to* the floors B' (A8) *has type* on top of (E55). (Hodder 1999)

In First Order Logic:
  AP11(x,y) ⊃ A8(x)
  AP11(x,y) ⊃ A8 (y)
  AP11.1 (x,y,z) ⊃ [AP11 (x,y) ∧ E55(z)]

Properties: AP11.1 has type: E55 Type

Work cited:

Hodder, I. (1999). The Archaeological Process: An Introduction. Blackwell Publishers, Oxford, UK., pp. 40-2.

e) *Label and examples for AP13 has stratigraphic relation (is stratigraphic relation of) & AP13.1 has type: E55 Type*

Examples set: the labels of the referred classes need to be checked and put to an e-vote. The forward going property is changed to **AP13 has stratigraphic relation to**, the label of the inverse to be discussed in a separate issue -together with AP11i because the pose the same kind of problem.

- The production of the floors at B of the building 1 in Çatalhöyük, Turkey (E12) *has stratigraphic relation to* the production of wall C (E12) *has type* after (E55). [as observed initially, see AP11] (Hodder 1999)
- The production of wall C of the building 1 in Çatalhöyük, Turkey (A5) *has stratigraphic relation to* the production of the floors at B (A5) *has type* after (E55). [as observed finally, see AP11] (Hodder 1999)
- The production of the wall C of the building 1 in Çatalhöyük, Turkey (A5) *has stratigraphic relation to* the production of wall D (A5) *has type* after (E55). [See AP11] (Hodder 1999)
- The production of the wall D of the building 1 in Çatalhöyük, Turkey (A5) *has stratigraphic relation to* the production of the floors B' (A5) *has type* after (E55). [See AP11] (Hodder 1999)

480: AP14 justified by (is justification of)
The (forward) label of the property, the properties it links together and its quantification changed

FROM (original)
AP14 justified by (is justification of)

Domain: AP13.1 has type (type of stratigraphic relation)
Range: AP11.1 has type (type of physical relation)

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

AP14 justified by (is justification of)

Domain: AP13 has stratigraphic relation to ()
Range: AP11 has physical relation to ()

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

524: reformulate the scope note of O19 and O21.

The scope note for O19 encountered object (was object encountered at) changed

O19 encountered object (was object encountered at)

Domain: S19 Encounter Event
Range: E18 Physical Thing
Quantification: many to many, necessary (1,n:0,n)

Scope note: This property associates an instance of S19 Encounter Event with an instance of E18 Physical
                   Thing that has been found.
Examples:

- The preservation followed the in situ finding (S19) that *has found*/detected the 18 arrowheads
  (E18) from Lerna in Argolis in 1994.

In First Order Logic:
              $O19(x,y) \supset S19(x)$
              $O19(x,y) \supset E18(y)$

O19 encountered object (was object encountered at)

Domain: S19 Encounter Event
Range: E18 Physical Thing
Quantification: many to many, necessary (1,n:0,n)

Scope note: This property associates an instance of S19 Encounter Event with an instance of E18 Physical
                   Thing that was encountered or observed as present during the event.
Examples:

- The preservation followed the in situ finding (S19) that *has found*/detected the 18 arrowheads
  (E18) from Lerna in Argolis in 1994[1].

In First Order Logic:
              $O19(x,y) \supset S19(x)$
              $O19(x,y) \supset E18(y)$

The scope note of O21 encountered at (witnessed encounter) changed

O21 encountered at (witnessed encounter)

---

[1]   *Fake example* (fictitious)

Domain: S19 Encounter Event
Range: E53 Place
Quantification: many to many, necessary (1,n:0,n)

Scope note: This property associates an instance of S19 Encounter Event with an instance of E53 Place at which an encounter event found things. It identifies the narrower spatial location in which a thing was found at. This maybe known or given in absolute terms or relative to the thing found. It describes a position within the area in which the instance of the encounter event occurred and found something.

Examples:

- The "urn:catalog:IOL:POLY:Sphaerosyllis-levantina-ALA-IL-7-Oct.2009" (S19) *has found at* Haifa Bay (E53).

In First Order Logic:
O21(x,y) ⊃ S19(x)
O21(x,y) ⊃ E53(y)

O21 encountered at (witnessed encounter)

Domain: S19 Encounter Event
Range: E18 Physical Thing
Quantification: many to many, necessary (1,n:0,n)

Scope note: This property associates an instance of S19 Encounter Event with an instance of E53 Place at which the things, which were encountered, were observed to be present. This may be given in absolute terms or in terms relative to the observed thing. The associated place must be within the boundaries of the E53 Place at which the S19 Encounter Event took place, if that has been given.

Examples:

- The "urn:catalog:IOL:POLY:Sphaerosyllis-levantina-ALA-IL-7-Oct.2009" (S19) *has found at* Haifa Bay (E53).

In First Order Logic:
O21(x,y) ⊃ S19(x)
O21(x,y) ⊃ E53(y)

360: LRMoo

R3 realised

Original

R3 is realised in (realises)

Scope note: This property associates an instance of F2 Expression with an instance of F1 Work.

This property expresses the association that exists between an expression and the work that this expression conveys. Our factual knowledge of how a given work is historically realised into expressions is often limited. Therefore, this property makes it possible to express the association between an instance of F2 Expression and the instance of F1 Work it conveys without identifying the particular instances of F2 Expression that were the source.

Examples: Dante's work entitled 'Inferno' (F1) *R3 is realised in* the Italian text of Dante's 'Inferno' as found in the authoritative critical edition La Commedia secondo l'antica vulgata a cura di Giorgio Petrocchi, Milano: Mondadori, 1966-67 (= Le Opere di Dante Alighieri, Edizione Nazionale a cura della Società Dantesca Italiana, VII, 1-4)

Mozart's work entitled 'Il dissoluto punito ossia il Don Giovanni' (F1) *R3 is realised in* the notated music of the Prague version, as found on manuscript Ms 1548 of the National Library of France (F2)

R3 is realised in (realizes)

Scope note: This property associates an instance of F2 Expression with an instance of F1 Work.

This property expresses the association that exists between an expression and the work that this expression conveys. Our factual knowledge of how a given work is historically realised into expressions is often limited. Therefore, this property makes it possible to express the association between an instance of F2 Expression and the instance of F1 Work it conveys without identifying the particular instances of F2 Expression that were part of a chain of derivation from the source.

Examples: Dante's work entitled 'Inferno' (F1) *R3 is realised in* the Italian text of Dante's 'Inferno' as found in the authoritative critical edition La Commedia secondo l'antica vulgata a cura di Giorgio Petrocchi, Milano: Mondadori, 1966-67 (= Le Opere di Dante Alighieri, Edizione Nazionale a cura della Società Dantesca Italiana, VII, 1-4)

Mozart's work entitled 'Il dissoluto punito ossia il Don Giovanni' (F1) *R3 is realised in* the notated music of the Prague version, as found on manuscript Ms 1548 of the National Library of France (F2)

Examples pushed from R12

The concept of Sergei Radlov's mise-en-scène of a Yiddish translation of the textual work entitled 'King Lear' in Moscow in 1935 (F20) *R12 is realised in* the set of instructions for the production of a Yiddish translation of the textual work entitled 'King Lear', as directed by Sergei Radlov in Moscow in 1935 (F25)

The concept of Pina Bausch's choreography of the ballet entitled 'Rite of spring' in Wuppertal in 1975 (F20) *R12 is realised in* the set of instructions for the production of the ballet entitled 'Rite of spring', as choreographed by Pina Bausch in Wuppertal in 1975 (F25)

The concept of Bruno Walter's performance of Gustav Mahler's 9th symphony in 1961 (F20) *R12 is realised in* the set of instructions by Bruno Walter for performing Gustav Mahler's 9th symphony, delivered by him to the Columbia Symphony Orchestra during rehearsals in Hollywood in 1961 (as partially documented in the CD entitled 'Bruno Walter conducts and talks about Mahler symphony No. 9: rehearsal & performance') (F25)

The concept of the "performance handbook" for Luigi Nono's musical work entitled 'À Pierre' (F20) *R12 is realised in* the set of instructions contained in the performance handbook for Luigi Nono's musical work entitled 'À Pierre' (F25)

Examples pushed from R13

The concept of the third alternate take of the musical work entitled 'Blue Hawaii' as performed by Elvis Presley in Hollywood, Calif., Radio Recorders, on March 22nd, 1961 (F21) R13 is realised in the set of signs that make up the third alternate take of the musical work entitled 'Blue Hawaii' as performed by Elvis Presley in Hollywood, Calif., Radio Recorders, on March 22nd, 1961 (F26)

The concept of making a photograph of the three Allied leaders at Yalta in February 1945 (F21) R13 is realised in the visual content of the famous photograph of the three Allied leaders at Yalta in February 1945 (F26)

Oceania Project's concept of making a large digital acoustic data archive dedicated to East Australian humpback whale songs (F21) R13 is realised in the audio content of the album entitled 'Songlines – Songs of the East Australian Humpback Whales' released in 2011 (F26)

The concept of recording Louise Bourgeois's artistic activity in the documentary entitled 'Louise Bourgeois: The Spider, the Mistress, and the Tangerine' (F21) R13 is realised in the audiovisual content of the documentary entitled 'Louise Bourgeois: The Spider, the Mistress, and the Tangerine' (F26)

Properties: R3.1 has type: E55 Type

R18 created (was created in)

Original

R18 created (was created in)

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.

Revised

R18 created (was created in)

Scope note: This property associates an instance of F28 Expression Creation with the first physical objects, instances of F5 Item, in which the resulting instance of F2 Expression was embodied.

R26 produced things of type (was produced by)

Original

R26 produced things of type (was produced by)

Scope note: This property associates an instance of F32 Carrier Production Event with the instance of F3 Manifestation, which must also be an instance of E99 Product Type, it produced items (F5) of.

Revised

R26 produced things of type (was produced by)

Scope note: This property associates an instance of F32 Carrier Production Event directly with the instance of E99 Product Type that is the prototype displaying the features that all of the F5 Items produced should display. This property is used in preference to R27 materialized when the instance of F3 Manifestation that is materialized by the F32 Carrier Production Event is also an E99 Product Type.

F32 carrier production event

Original

F32 carrier production event

Scope note: This class comprises activities that result in instances of F54 Utilised Information Carrier coming into existence. Both the production of a series of physical objects (printed books, scores, CDs, DVDs, CD-ROMS, etc.) and the creation of a new copy of a file on an electronic carrier are regarded as instances of F32 Carrier Production Event.

Typically, the production of copies of a publication (no matter whether it is a book, a sound recording, a DVD, a cartographic resource, etc.) strives to produce items all as similar as possible to a prototype that displays all the features that all the copies of the publication should also display, which is reflected in the property *R27 materialized:* F3 Manifestation.

F32 carrier production event

Scope note: This class comprises activities that result in instances of F5 Item coming into existence. Both the production of a series of physical objects (printed books, scores, CDs, DVDs, CD-ROMS, etc.) and the creation of a new copy of a file on an electronic carrier are regarded as instances of F32 Carrier Production Event.

Typically, the production of copies of a publication (no matter whether it is a book, a sound recording, a DVD, a cartographic resource, etc.) strives to produce items all as similar as possible to a prototype that displays all the features that all the copies of the publication should also display, which is reflected in the property R27 materialized: F3 Manifestation. In the case where the instance of F3 Manifestation that is materialized is also an instance of E99 Product Type, the property R26 produced things of type is the preferred method to associate the instance of F32 Carrier Production Event directly with the instance of E99 Product Type.

R27 materialized (was materialized by)

Original

R27 materialized (was materialized by)

Scope note: This property associates an instance of F32 Carrier Production Event with the set of signs provided by the publisher to be carried by all of the produced items and any other foreseen physical features.

Revised

R27 materialized (was materialized by)

Scope note: This property associates an instance of F32 Carrier Production Event with the set of signs provided by the publisher to be carried by all of the produced items (i.e., the instances of F5 Item) and any other physical features foreseen as integral to the instance of F3 Manifestation that is materialised.

476: Pxx represents entity of type

Pxx represents instance of type

This property establishes the relationship between an instance of E36 Visual Item and an instance of E55 Type that characterises the thing depicted. This property is used when the identity of the thing depicted is unknown or unrecorded, but is clearly a particular thing of that type. If the instance of E36 Visual Item directly depicts the concept of the E55 Type rather than an instance of a thing of that type, then this should be represented using E36 Visual Item *P138 represents* E55 Type.

This property is a shortcut of the more fully developed path from E36 Visual Item through *P138 represents*, E1 Entity, *P2 has type*, E55 Type.

Examples:

- The visual content of photograph gri_2012_m_2_b001_f001_d01_e005_0148 (E36) *represents instance of type* automobile (E55)
  [Reference: https://www.getty.edu/research/collections/object/10062J]