## Issue 360: LRMoo

PR walked the SIG through the sub-topics identified in the context of producing an LRMoo stable version. Subtopics discussed fall under two broad categories, namely:

1. Review of examples
2. Model modifications

### Review of Examples

1. **R35 is specified by (specifies)**

**Proposal** to add example:

* ‘Martin Doerr’ as the name of co-chair of the CIDOC CRM SIG (F12) *is specified by* the statement on the title page of the Definition of the ‘CIDOC Conceptual Reference Model’, Version 7.1.1, April 2021 (F2).

**Vote** to accept:   
In favor: 7  
Against: none  
**Outcome**: accepted

1. **R8 combines (is combined form)**

According to the examples template, each example should instantiate the property at hand exactly once (i.e. refer to exactly one instance of the domain and range classes).. Examples for R8 previously contained multiple instances of the range class, so they were split to match the example template. However, this resulted in there being 17 examples -way more than necessary.

**Proposal:**

* accept all examples except the ‘starfish ones’and the “Guillaume de Machaut” combination of person name and town.
* Given that all the examples refer to instances of F12 Nomen rather than the more generic E89 Propositional Object, the range can change to F12.
* the last bit of the shortcut ([or E89 Propositional Object] to be deleted

**Vote** to accept proposal  
In favor: 9  
Against: none  
Outcome: Accepted (details in the Appendix)

**HW**: PR, TA, MZ, MR to reword the scope note (use R33 as a template), add final [notes] to simplify the references to the subject or classification system.   
Also consider examples where natural language terms and qualifiers form compound expressions (f.i. AAT orange(colour), orange(fruit).

1. **R69 specifies physical form (is specified physical form of)**

**Proposal** to add new example

* The ebook ‘Christianity: the first three thousand years’ by Diarmaid MacCulloch published by Viking in 2010 and identified by the ISBN ‘978-1-101-18999-3’ (F3) *has physical form* EPUB for Kobo ebook reader (E55)

**Vote** to accept the example:  
in favor: 9  
Against: none  
**Outcome**: accepted

1. **Review of examples relating to major classes (F1 Work, F2 Expression, F3 Manifestation, F5 Item) to ensure they represent typical situations and are considered relevant**.

Some examples have moved up in the model due to classes and properties having been deprecated. Are they relevant? Do they illustrate the class/property at hand?

The list of examples can be accessed in an editable format [here](https://docs.google.com/document/d/1EuMuru3FzKV-bJ_QQd9w2YfJZA1dQk0M/edit?usp=sharing&ouid=106527976073466803201&rtpof=true&sd=true). SIG members are invited to give feedback on the examples by the end of February.

**Discussion**:

**TA**: the examples all come from a Western background, we should probably add examples that assume different perspectives, to ensure their point comes across.

**PR**: They tried to keep examples that are the easiest to understand and that the LRM group can vouch for their validity.

### Model modifications

#### F5 Item (revise scope note): shorten sentences and use straightforward examples

**Vote** in favor of proposed changes:   
In favor: 9  
Against: none  
**Outcome**: Accepted. Details below.

##### OLD

**F5 Item**

Subclass of: E24 Physical Human-Made Thing

Scope note: This class comprises physical objects (printed books, scores, CDs, DVDs, CD-ROMS, etc.) that were produced by (P186i) an industrial process involving a given instance of F3 Manifestation. As a result, all the instances of F5 Item associated with a given instance of F3 Manifestation are expected to carry the content defined in that instance of F3 Manifestation, although some or even all of them may happen to carry a content that significantly differs from it, due to either an accident in the course of industrial production, or subsequent physical modification or degradation.

An instance of F5 Item that consists of a physical object or set of objects with clear physical boundaries is also an instance of E22 Human-Made Object. An instance of F5 Item that is stored on a part of a larger physical support (such as an electronic file among others on a disc) can also be considered to be an instance of E25 Human-Made Feature.

The notion of F5 Item is only relevant with regard to the production process, from a bibliographic point of view. Cultural heritage institutions’ holdings are a distinct notion: a holding certainly can be equal to an instance of F5 Item, but it also can be either “bigger” than one (e.g., when two instances of F5 Item are bound together (in the case of printed books), or physically united in any other way, or when an instance of F5 Item is enhanced through the addition of manuscript annotations, or any material that was not intended by the publisher, such as press clippings, dried flowers, etc.), or “smaller” than one (e.g., when a one volume instance of F5 Item (in the case of printed books) is interleaved and rebound as two volumes, or when pages were torn away from it, or when one CD from a two-CD set is missing, etc.). From an operational point of view, cultural heritage institutions do *not* deal with instances of F5 Item, but with storage units. However, it was not deemed necessary to declare an additional class for the notion of Storage Unit. Storage units can be easily accounted for through the E19 Physical Object class from CIDOC CRM, and the relationships between storage units and instances of F5 Item through the *P46 is composed of (forms part of)* property from CIDOC CRM. If needed, an instance of E19 Physical Object can be typed as a storage unit through the *P2 has type (is type of)* property.

##### NEW

Subclass of: E24 Physical Human-Made Thing

Scope note: This class comprises physical objects (printed books, scores, CDs, DVDs, CD-ROMS, etc.) that were produced by (P186i) an industrial process involving a given instance of F3 Manifestation. As a result, all the instances of F5 Item associated with a given instance of F3 Manifestation are expected to carry the content defined in that instance of F3 Manifestation, although some or even all of them may happen to carry a content that significantly differs from it, due to either an accident in the course of industrial production, or subsequent physical modification or degradation.

An instance of F5 Item that consists of a physical object or set of objects with clear physical boundaries is also an instance of E22 Human-Made Object. An instance of F5 Item that is stored on a part of a larger physical support (such as an electronic file among others on a disc) can also be considered to be an instance of E25 Human-Made Feature.

The notion of F5 Item is only relevant with regard to the production process, from a bibliographic point of view. Cultural heritage institutions’ holdings are a distinct notion: a holding certainly can be equal to an instance of F5 Item, but it also can be either “bigger” than one (e.g., when two instances of F5 Item are bound together (in the case of printed books)), or “smaller” than one (e.g., for incomplete holdings, such as when only one CD from a two-CD set is held). From an operational point of view, cultural heritage institutions typically do *not* deal with instances of F5 Item, but with storage units, although for libraries in most cases this is not significant because each item corresponds with a single storage unit. When this is not the case, the linkage between items and storage units can be easily accounted for through the E19 Physical Object class from CIDOC CRM, and the relationships between storage units and instances of F5 Item recorded through the *P46 is composed of (forms part of)* property from CIDOC CRM. If needed, an instance of E19 Physical Object can be typed as a storage unit through the *P2 has type (is type of)* property.

#### F27 Work Conception/Fnn Work Creation

**Problematizing for F27:**

* All examples for F27 have been deduced examples –an idea will be documented insofar as it has concreted to some extent.
* LRMer has a LRM-R5 work creation class and the mapping uses F27 but the semantics of the two classes are not identical.
* F27 isA E65, but F27 also includes commissioned products that were never completed (so no creation ever took place)

**Discussion**:

* The first expression of a work is rarely documented, it would be extremely unlikely to find it in a system anywhere. Cannot be used to express that a work was known to have existed (F3). The examples are wrong
* Reworking examples to document periods that known works were being created (Beethoven’s 9th, The Hitchhicker’s Guide to the Galaxy <however it is not the kind of information documented in library records>, also private letters referring to sketches and drafts, Mary Shelley’s conception of Frankenstein <occurred during her Italian tour, but did not produce the actual text until much later>, Philip Pullman’s The Book of Dust <the process of writing the 3rd book is documented in a blog>, Divina Comedia is another good example)
* Commissioning as an initial date when some result or full scale model (as in architectural competitions) is presented, not when a totally open ended contract which may or may not result in anything. Commissioned works that did not produce any outputs (because they consitute breeches of contracts) are excluded from this model.

**Proposal**:

The Conception should not be defined as a moment of initial creation, it is more a longer time span and a process.

* It is that time span that needs to be defined carefully: it should also comprise the conception of the work.
* If the library has no evidence that the work was conceived before the work was created and there is archival reccords suggesting that the creation of the work was predated by a separate event of conceiving the work, then this knowledge should inform te library records.

**HW: MD** to rewrite **F27 Work Conception** and ***R16 initiated*** trying to reconcile the constructs with **Work Creation** and ***created by***: bearing in mind that F1 Work isA E89 Propositional Object and should not be confused with its first F2 Expression. Examples to be taken into account: Divina Comedia, Frankenstein, Beethoven’s 9th

#### F28 Expression Creation

##### Rnn is derivative of (has derivative) [D: F2 Expression, R: F2 Expression]

**Background**: The scope note of F28 covers expression derivation (between expressions of the same work) and also gives a path for the derivation of a new work based on a specific expression of another work. In LRMer these are two distinct relationships: LRM-R22 for work transformation (maps to R2 *is derivative of (has derivative)*), and LRM-R24 for expression derivation (for expressions of the same work) which has no direct equivalent in LRMoo. **Should a property be created to map to LRM-R24?** This is an important property which is much used and should not just be a path. This property has a constraint that both expressions realise the same work

**Discussion**:

* The relation btw the instances of F2 Expression is completely defined by the relation btw the instances of F1 Work –the extra property seems superfluous if it is to model the relation btw expressions of the same instance of F1.
* **Any relation between separate works would manifest itself through an established relation between expressions**. However, there are cases in which one needs to document the relation between two different expressions of the same work (as is the case with translations)**.**Derivations btw instances of F2 Expression can refer to translations btw versions, concordances from a given version of an F2 Expression instantiate the property
* No relation between the works of the given expressions should be inferred
* re. the quantification (many-to-many): an instance of an F2 Expressions can be the source of any number of other instances of F2 Expression. And (in translation projects, in particular, or musical scores) one can consult more than one instances of F2 Expression (many sources)
* LRM-R24 maps to Rnn is derivative of [D:F2, R:F2] when both instances of F2, *R3 realise* the same instance of F1 Work.
* LRM-R24 maps to the long path **F2 Expression(1). *P16i was used for*: F28 Expression Creation. *R17 created*: F2 Expression(2)**, when the instances of F2 Expression do not *R3 realise* the same instance of F1 Work.

**Proposal**: introduce the proposal (minor edits included), provide alternative mappings for LRM-R24 in LRMoo. CEO to check the wording of the long path in the scope note. Will have implications for the definition of the property (shortcut of, FOL axioms etc.)

**Vote** to introduce new property that maps to LRM-R24:   
In favor: 6  
Against: none  
**Outcome**: accepted, will be assigned a number. Details below.

**Rnn is derivative of (has derivative)** **–new property maps to LRM-R24**

Domain: F2 Expression

Range: F2 Expression

Subproperty of: E70 Thing. P130 shows features of (features are also found on): E70 Thing

Shortcut of ?

Quantification: (0,n:0,n)

This property associates an instance of F2 Expression with another instance of F2 Expression (which realises the same instance of F1 Work) which was its source or one of its sources. This property is transitive. This property can be viewed as a shortcut of a longer path: F2 Expression (1). *P16i was used for*: F28 Expression Creation. *R17 created*: F2 Expression (2).

The property Rnn.1 *has type* of this property allows for specifying the kind of derivation, such as translation, revision, etc.

##### scope note of F28 Expression Creation needs redrafting

**Background**: F28 references F1, F2, F3 and F5 all at the same time, it needs to be more focused and systematically discriminate among said classes. Proposal for a new scope note put forth.

**Proposal**:

* accept the first three paragraphs as they are now (following revisions) and
* reword the two last paragraphs to express
  + the correct long path
  + that an instance of F1 Work can be the source for an F28 Expression Creation (i.e. F28 does not need to go through an instance of F2 as its source). The P16i was used for can either take as range an F1 or an F2.

**Vote**: note as proposed  
In favor: 7  
Against: 0  
**Outcome**: paragraphs 1-3 are accepted, the rest are to be reworked (HW for PR, TA, MZ, MR). Details below.

###### OLD

F28 Expression Creation

Subclass of: E12 Production

E65 Creation

F56 Externalization Event

Superclass of: F29 Recording Event

F30 Manifestation Creation

Scope note: This class comprises activities that result in instances of F2 Expression coming into existence. This class characterises the externalisation of an F1 Work. The creation of an instance of F1 Work is considered to occur at the time of creation (F28) of its first F2 Expression.

Although F2 Expression is an abstract entity, a conceptual object, the creation of an expression inevitably also affects the physical world: when you scribble the first draft of a poem on a sheet of paper, you produce an instance of F3 Manifestation. F28 Expression Creation is a subclass of E12 Production because the recording of the expression causes a physical modification of the E18 Physical Thing that serves as the carrier. The work becomes manifest by being expressed on a physical carrier other than the creator’s brain. The spatio-temporal circumstances under which the expression is created are necessarily the same spatio-temporal circumstances under which the first instance of F3 Manifestation is produced.

It is possible to use the *P2 has type (is type of)* property in order to specify that the creation of a given expression of a given work played a particular role with regard to the overall bibliographic history of that work (e.g., that it was the creation of the progenitor expression on which all other expressions of the same work are based; or that it was the creation of the critical edition that served as the basis for canonical references to the work).

An instance of F28 Expression Creation may use as source material a specific existing instance of F2 Expression. The property P16 *used specific object (was used for)* can be used to specify the source expression for the derivation. In cases such as a translation or a revised edition, etc., a new instance of F2 Expression of the same F1 Work, a derived expression, is created. In the situation where an expression of one instance of F1 Work serves as source material for the creation of the first expression of a new instance of F1 Work, the relationship is indicated using the property *R2 is derivative of (has derivative)* between the two instances of F1 Work. Path: F1 Work(1). *R3 is realised in:* F2 Expression(1). *P16i was used for:* F28 Expression Creation. *R17 created*: F2 Expression(2). *R3i realises*: F1 Work(2). *R2 is derivative of*: F1 Work(1)

Properties**:** R17 created (was created by): F2 Expression

R18 created (was created by): F5 Item

R19 created a realisation of (was realised through): F1 Work

###### NEW

**F28 Expression Creation**

Subclass of: E12 Production

E65 Creation

F56 Externalization Event

Superclass of: F29 Recording Event

F30 Manifestation Creation

Scope note: This class comprises activities that result in instances of F2 Expression coming into existence. An instance of F2 Expression is considered to be created when it is captured on a carrier other than the creator’s brain.

The *P2 has type (is type of)* property can be used to specify the type of the instance of F28 Expression Creation (i.e., activities such as translating, revising, or arranging music are types of creation process). The type of the process is distinct from the type of result even though the typology frequently used for instances of the resulting F2 Expressions may imply the category of the instance of the F28 Expression Creation process.

Although F2 Expression is an abstract entity, a conceptual object, the creation of an expression inevitably also affects the physical world: when you scribble the first draft of a poem on a sheet of paper, you produce an instance of F3 Manifestation and an instance of F5 Item. F28 Expression Creation is a subclass of E12 Production because the recording of the expression causes a physical modification of the E18 Physical Thing that serves as the carrier. The creation of an instance of F2 Expression coincides with the creation of the first instance of F3 Manifestation that *R4 embodies (is embodied in)* this instance of F2 Expression.

An instance of F28 Expression Creation may use as source material one or more specific instances of F2 Expression. When the source is documented this is also expressed by the property *Rnn is derivative of (has derivative).*

In the situation where an expression of one instance of F1 Work serves as source material for the creation of the first expression of a new instance of F1 Work, the relationship between the works is indicated using the property R2 is derivative of (has derivative) between the two instances of F1 Work. Path: F1 Work(1). R3 is realised in: F2 Expression(1). P16i was used for: F28 Expression Creation. R17 created: F2 Expression(2). R3i realises: F1 Work(2). R2 is derivative of: F1 Work(1)

Properties**:** R17 created (was created by): F2 Expression

R18 created (was created by): F5 Item

R19 created a realisation of (was realised through): F1 Work

##### Deprecate R18 created (was created by) [D: F28, R: F5]

Since F28 isA E12 then it must necessarily produce an F5 Item. If the P108 has produced an instance of E24 Physical Human Made Thing, which, in its turn also instantiates a F5, then R18 becomes completely superfluous.

The quantification as it is, i.e. many-to-many, necessary (1,n:0,n), is wrong, the quantification of the superproperty being stricter and expressing that for each instance of E24 Physical Human Made Thing, there must be exactly one E12 Production activity that resulted in its coming into being.

**Proposal**: Deprecate it, it is completely covered by the semantics of P108  
**Vote**: to accept  
In favor: 5  
Against: none  
**Outcome**: accepted