



## FRBR/CRM Harmonisation Meetings Consolidated Minutes

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# 1st Meeting on FRBR/CRM Harmonization

Paris (France), Bibliothèque nationale de France,  
12-14 November 2003

Delegates from the CIDOC CRM SIG and the IFLA Working Group on the FRBR/CRM dialogue (affiliated to the FRBR Review Group of IFLA) have come together in Paris, Nov. 12-14, in order to discuss the Harmonisation of the CIDOC CRM with the FRBR model from IFLA, with the aim to contribute to the solution of the problem of semantic interoperability between the documentation structures used for library and museum information, such that:

- \* all equivalent information can be retrieved under the same notions and
- \* all directly and indirectly related information can be retrieved regardless of its distribution over individual data sources;
- \* knowledge encoded for a specific application can be re-purposed for other studies;
- \* recall and precision in systems employed by both communities is improved;
- \* both communities can learn from each other's concepts for their mutual progress; for the benefit of the scientific and scholarly communities and the general public.

In this first meeting, a common understanding of the FRANAR, FRBR and CIDOC CRM modelling approach, their benefits and potential was achieved.

Particularities of conceptualisations currently characteristic for museums and for libraries were discussed. It was agreed that traditional museum documentation and library documentation are distinct in form and focus. But it was also agreed that the tasks of libraries and museums overlap to some amount, and that in the future each of both communities will even more engage in activities traditionally characteristic for the other.

In particular, the meeting discussed notions of work, manifestation, collective items, subject relationship, documentation of manuscripts and persons acting under roles, in a general context and seen from the CRM and FRBR/FranAR framework. Some methodological issues of information modelling were discussed, with respect to ontological considerations, applications and their complexity and the effect for the end user.

The practical value of a common model and its possible form was discussed. Without coming to a final conclusion, it was acknowledged the value of a common model is the common understanding of the concepts and phenomena relevant to the functions and documentation practice of both communities, so that information systems can be designed

- \* that allow for seamless exchange between libraries and museums information,
- \* and that are more fit for specific user requirements than the current ones. A practical collaboration plan to realise a common model was discussed. (More detailed report to follow).

The next meeting, open to interested members of both communities, is envisaged for March 22-25, in Crete.

So far, no dedicated funding could be raised for this activity, therefore all interested parties are kindly asked to look for any funding source possible.

## 2nd Meeting on FRBR/CRM Harmonization

Heraklion (Crete), ICS-FORTH,  
22-25 March 2004

### Main topic: Expressing FRBR as an object-oriented model

#### WHO?

The series of FRBR/CRM Harmonization Meetings involves an informal committee, called FRBR/CRM Harmonization Group. This committee is not affiliated to an existing corporate body, but it actually represents the collaboration of two groups that have a more formal existence:

the FRBR/CRM Harmonization Group consists of individual members of the CIDOC CRM Special Interest Group (CRM SIG – more info at: <[http://cidoc.ics.forth.gr/special\\_interest\\_members.html](http://cidoc.ics.forth.gr/special_interest_members.html)>), which in turn is a Working Group of the ICOM CIDOC (the International Committee for Documentation of the International Council of Museums – more info at: <<http://www.willpowerinfo.myby.co.uk/cidoc/>>); both the CRM SIG and its subgroup on FRBR/CRM Harmonization are chaired by Martin Doerr;

the FRBR/CRM Harmonization Group also involves the IFLA Working Group on FRBR-CRM dialogue, which is affiliated to the IFLA FRBR Review Group (more info at: <<http://www.ifla.org/VII/s13/wgfrbr/wgfrbr.htm>>), which in turn is affiliated to the IFLA Cataloguing Section (official Web site at: <<http://www.ifla.org/VII/s13/sc.htm>>); both the FRBR Review Group and its WG on FRBR-CRM dialogue are chaired by Patrick Le Bœuf.

The FRBR/CRM Harmonization Group can therefore be regarded as an indirect emanation of both the ICOM CIDOC and the IFLA Cataloguing Section.

As a whole, it is chaired by Martin Doerr (ICS-FORTH – the Institute of Computer Science of the Foundation for Research and Technology – Hellas), assisted by Patrick Le Bœuf (BnF – Bibliothèque nationale de France).

Meeting #2 was attended by: Chrysoula Bekiari, Martin Doerr, Patrick Le Bœuf (except on March 25th), Dan Matei, Stephen Stead, and Maja Žumer. Allyson Carlyle did not attend the meeting but she sent a number of important documents relating to the notion of Subject in the FRBR model.

#### WHAT?

The main topic of the FRBR/CRM Harmonization Group's second Meeting, which took place in Heraklion, Crete, on March 22-25, 2004, was to express the FRBR model as an object-oriented conceptual model, which can be regarded as a kind of formal ontology. One meeting was not sufficient for such a huge task, and future meetings and e-mail work will be devoted to that same effort.

It is important to understand that the objective is not to “transform” the IFLA FRBR model into something totally different or “better”, nor of course to “reject” it or “replace” it – but to *express* the conceptualization of FRBR with the object-oriented methodology instead of the ER methodology as an alternative. The FRBR/CRM Harmonization Group builds on the considerable effort in conceptualization that FRBR<sub>ER</sub> represents.

As a “by-product”, it also is a good opportunity to correct some semantic inconsistencies or inaccuracies in the formulation of FRBR, that may be regarded as negligible as far as FRBR<sub>ER</sub> is only used in a library catalogue context, but that prove to be quite crucial from the moment you strive to design an overall model for the integration of cultural heritage related information, and to *explicate* quite a number of thought processes that are left *implicit* in the original model, as it was intended for cataloguers who were supposed to fully understand all the very complex processes that were only alluded to in the original model. It also is an opportunity to develop an actual *ontology* out of the IFLA entity-relationship

model, with a formalism more suitable for Semantic Web related activities. Last but not least, it is an important opportunity to explicate all the semantic implications of FRBR and to check its robustness as a model. Although FRBR<sub>ER</sub> cannot be labeled a “data model”, it is still too much bound to data structures in its current form, and an object-oriented formalization will certainly contribute to make an actual *conceptual, semantic model* out of it.

### WHY?

The simple Entity-Relationship methodology without inheritance is not adequate from the moment a certain level of complexity has been attained. The object-oriented methodology allows one to account for a high degree of complexity in a relatively simple and elegant way, thanks to the notion of *inheritance* and the simplification of attributes, links and relationships into one construct. OO abstracts even more from the implementation level than ER, providing more power to compare different implementations for their common meaning. Besides, the CIDOC CRM model is expressed as an object-oriented semantic model and it will therefore be easier to compare and merge both models once both of them are expressed in the same formalism.

### WHEREFORE?

Libraries and museums are “memory institutions” – both of them strive to preserve cultural heritage objects and information about such objects. Besides, the boundary between them is often blurred: libraries hold a number of “museum objects” and museums hold a number of “library objects”; the cultural heritage objects preserved in both types of institutions were created in the same cultural *context* or *period*, sometimes by the same *agents*, and they are evidences for comparable *cultural features*. Mediation tools and Semantic Web activities require an integrated, shared ontology for the information accumulated by both libraries and museums for all the collections that they hold, seen as a continuum from highly “standardized” products such as books, CDs, DVDs, etc., to “raw” materials such as plants or stones\*, through “in-between” objects such as draft manuscripts or engraving plates. Besides, such typical “library objects” as books can be *about* museum objects, and museum objects can *represent* events or characters found in books (“Ophelia’s death”): such an interrelationship should definitely be integrated in common information storage, or at least virtually integrated through mediation devices that allow a query to be simultaneously launched on distinct information depositories, which again requires common semantic tools.

### HOW?

The methodology used at Meeting #2 consisted in an examination of all of the attributes defined in *FRBR Final Report* for entities Work and Expression. The Group strove to explicate as profoundly as possible the precise semantic value of each of them, to express them as “properties” in the sense of CIDOC CRM, and to compare them with possibly existing CIDOC CRM properties.

That process involved the recognition of the central, dramatic value of the *Event* notion. Time issues are not sufficiently addressed in *FRBR Final Report*, a point that has been highlighted by a number of FRBR commentators and implementers. For instance, see:

- HEANEY, Michael. *Time is of the essence: some thoughts occasioned by the papers contributed to the International Conference on the Principles and Future Development of AACR* [on line]. Oxford: Bodleian Library, 1997 [cited 9 March 2000]. Available from World Wide Web: <http://www.bodleian.ox.ac.uk/users/mh/time978a.htm>.

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\* Natural history museums also are witnesses of “cultural features.” A frog in a museum is not a testimony of what a frog is, but of what a human culture, at a given point in time and space, thinks a frog is.

- LAGOZE, Carl. Business unusual: how “event-awareness” may breathe life into the catalog?. In: *Conference on bibliographic control in the new millennium* [on line]. Washington: Library of Congress, October 19, 2000 [cited 28 December 2000]. Available from Internet: <[http://lcweb.loc.gov/catdir/bibcontrol/lagoze\\_paper.html](http://lcweb.loc.gov/catdir/bibcontrol/lagoze_paper.html)>.
- FITCH, Kent. *ALEG Data Model. Inventory* [on line]. [Brisbane]: AustLit Gateway, revised 27 July 2000 [cited 26 March 2004]. Available from World Wide Web: <<http://www.austlit.edu.au:7777/DataModel/inventory.html>>.
- DOERR, Martin; HUNTER, Jane; LAGOZE, Carl. Towards a core ontology for information integration. In: *Journal of Digital Information* [on line]. 2003-04-09, Vol. 4, No. 1 [cited 15 May 2003]. Available from World Wide Web: <<http://jodi.ecs.soton.ac.uk/Articles/v04/i01/Doerr/>>.

Naming conventions: resulting classes were given both a name and an identifier constructed according to the conventions used in the CIDOC CRM model. That identifier consists of the letter F followed by a number for classes. Resulting properties were also given a name and an identifier, constructed according to the same conventions. That identifier consists of the letter R followed by a number. “F” and “R” are to be understood as the first two letters of “FRBR” and do not have any other meaning. They correspond respectively to letters “E” and “P” in CIDOC CRM naming conventions, where “E” originally meant “entity” (although the CIDOC CRM “entities” are now consistently called “classes”) and “P” means “property”. Whenever a FRBR entity is supposed to overlap totally with an extant CIDOC CRM class, it is assigned two names and two identifiers: its name and identifier as in CIDOC CRM, and its name and identifier according to FRBR<sub>OO</sub> naming conventions.

#### WHAT NEXT?

During Meeting #2, only two FRBR<sub>ER</sub> Entities, Work and Expression, were examined. Future tasks will involve the examination of all other FRBR<sub>ER</sub> entities (Manifestation, Item, Person, Group, Concept, Place, Event, and Object), of all FRANAR<sub>ER</sub> entities that are not mentioned in FRBR<sub>ER</sub>, and of all relationships described in both FRBR<sub>ER</sub> and FRANAR<sub>ER</sub>. The resulting picture will be formalized and stabilized, and will result in a full-length description of FRBR<sub>OO</sub>, which will be submitted for approval to both the CIDOC CRM SIG and the IFLA FRBR Review Group (and the IFLA Cataloguing Section of which it is an emanation). It is expected that FRBR<sub>OO</sub> will be regarded as a new, “official” release of the IFLA FRBR model. However, the highly pedagogical value of FRBR<sub>ER</sub> is recognized, and it is also expected that FRBR<sub>ER</sub> will be kept by IFLA (although presumably with a number of modifications, e.g. some attributes will have to be removed from one entity to another) for pedagogical purposes and to provide “lay” people with a convenient overview of the model, whereas FRBR<sub>OO</sub> will be used for implementation purposes.

It is also admitted and expected that the paradigm shift from ER to OO and the seemingly greater complexity that ensues (but it only seems so) will require an effort in communication and pedagogy. It will be necessary to inform the IFLA Cataloguing Section and provide training for librarians. It took several years before FRBR<sub>ER</sub> was fully accepted, and it was initially found too “complex”, too “difficult”, and too “abstract”; it will presumably take another several years before FRBR<sub>OO</sub>, which may seem even more “abstract” and “complex” although it actually is more concrete (since everything that was left implicit in FRBR<sub>ER</sub> is explicated) and simpler (since all properties of a superclass are inherited by all of its subclasses), is fully accepted within the community.

The next Meeting is planned towards the end of this year (2004). The following Meeting will perhaps be organized in Southampton (UK) in February 2005.

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\* \*

## MEETING #2 STEP BY STEP

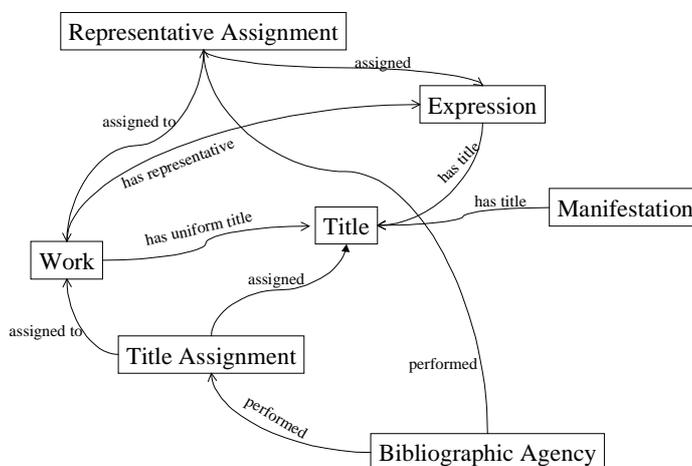
March 22nd.

Martin Doerr states that there are too many attributes for each FRBR<sub>ER</sub> entity. In a *conceptual* model for a wider domain, it is unlikely that one class concentrates many attributes that are not applicable to any other class. If one class concentrates many attributes, it should be examined if there are common superclasses that carry some of these attributes, or if actually some concepts comprise conflicting interpretations that should be better split into more classes, and properties that link classes to each other.

Dan Matei's attempt at an OO formalization of FRBR<sub>ER</sub> is examined. Dan states that he is no longer satisfied with that older document (available at: <http://www.ifla.org/VII/s13/wgfrbr/papers/DanMatei4.jpg>) and he submits a newer version. All agree that an *action* should definitely *not* be left *induced* in a relationship, which calls for a recognition of the *Event* notion (in a broader sense than the Event entity in the current version of FRBR<sub>ER</sub>). For instance, the attribute "Date of Work" does not make sense as such: there is obviously a *creation event* that is involved here, and that should *not* be left hidden in the path. Stephen Stead insists that some information elements seem to be merely "typological", although they actually involve an event: for instance, the attribute "Form of Work" seems to merely record a categorization, whilst it actually involves the way a Work has been realized.

Work attributes are examined one by one.

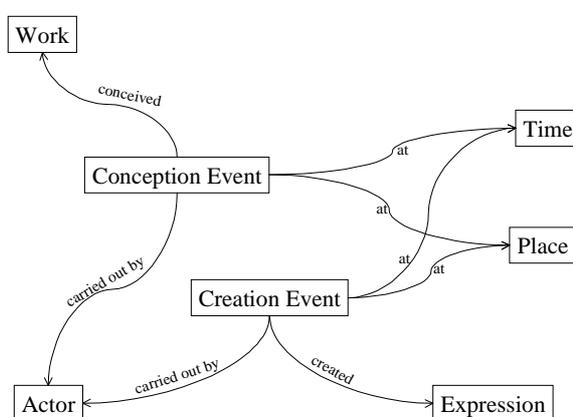
**Title of the Work** (*FRBR Final Report* §4.2.1, p. 33). This attribute is much trickier than it seems. In cataloguing practice, an instance of the Work entity may have two kinds of title: a uniform title, that is assigned by a cataloguing agency; and a "natural" (although the term is inappropriate) title, which serves to create the uniform title by adding other Work attributes to the "natural" title. That "natural" title is necessarily known through a concrete evidence, although the Work entity is an abstract one. Notions of *representativity* and *representative assignment* are essential here: the Work title is known through the title of an Expression that is deemed *representative* of the Work, and the title of the representative Expression is known through the title proper of a Manifestation that is deemed *representative* of the Expression. Martin Doerr sums up: "If the Work is not there, the Expression represents the Work; if the Expression is not there, the Manifestation represents the Expression". The following figure illustrates the whole process:



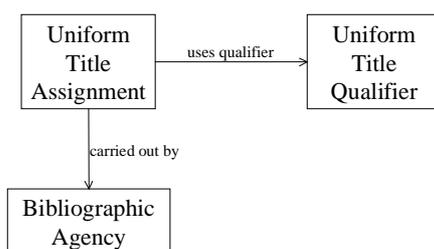
**Form of Work** (*FRBR Final Report* §4.2.2, p. 33). Stephen Stead proposes to reword that attribute: "**Constraining Super-Type of the Work**". The reasoning behind is that the function performed by the

Work form attribute is to define boundaries between instances of the Work entity: whenever an Expression does not have a “type” that is compatible with the “type” of the Work, then it is an Expression of another Work (hence the terms “constraining” and “super-type”). Martin Doerr adds that it actually is the Type of the Representative Expression. As a rule, any Expression that is not compatible with that type is representative for another Work: if an Expression has a type that is not a subtype of this super-type, then it is an Expression of a new Work. How to determine the Constraining Super-Type of a Work? Again, an entity Representative Expression is required: the Constraining Super-Type of the Work is in fact the Type of the Expression that has been assigned to the Work as its Representative Expression.

**Date of Work** (*FRBR Final Report* §4.2.3, p. 33). It is in practice an approximation of the time of the Conception Event; in the absence of a Date of the Work, a good surrogate is an approximation for the time of the Creation Event (i.e., at the (representative) Expression level). The following figure illustrates the entire process:



**Other Distinguishing Characteristic** (*FRBR Final Report* §4.2.4, p. 33). A very problematic attribute. Further discussion is needed. Distinguishing characteristics are used only for assigning a uniform title. There should be a more general theory of how to construct good identifiers (URIs, so-called “skolem functions” etc.) from known properties of an entity or from the context of an entity. This has extraordinary importance for information integration. If the distinguishing characteristics are some data that already has been modeled, then we do not need this attribute. Finally, 4.2.4 is either “title qualifier” or any other rule that refers to a path already modeled. For the time being, the following figure shows how the semantic content of that attribute is understood by the Group:

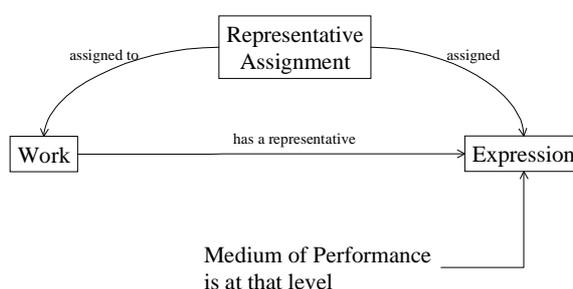


**Intended Termination** (*FRBR Final Report* §4.2.5, p. 34). Actually is a property of a Continuing Resource; to be modeled later. It seems not to be a property of the Work entity.

**Intended Audience** (*FRBR Final Report* § 4.2.6, p. 34). Is at the Expression level. The Work in itself has no “intention”; the intention is to be found at the level of the *text* – i.e., at the Expression level.

**Context for the Work** (*FRBR Final Report* §4.2.7). = *Period* (E4 in CIDOC CRM) of the Conception Event.

**Medium of Performance (Musical Work)** (*FRBR Final Report* §4.2.8, p. 34). That notion again requires the assignment of a *Representative Expression* for the Work, and it is at the level of that Representative Expression rather than at the Work level:



**Numeric Designation (Musical Work)** (*FRBR Final Report* §4.2.9, p. 34). It is a qualifier created by another agency or influenced by another identifier. To be modeled exactly like Other Distinguishing Characteristic.

**Key (Musical Work)** (*FRBR Final Report* §4.2.10, p. 34). It actually is an attribute of the Representative Expression – therefore, not at the Work level.

**Coordinates (Cartographic Work)** (*FRBR Final Report* §4.2.11, p. 35). It actually pertains to the *Subject* (or *Coverage*) notion: it serves to define the area that is covered by the cartographic document.

**Equinox (Cartographic Work)** (*FRBR Final Report* §4.2.12, p. 35). Ditto.

**Place of origin of the Work** (*FRANAR 2003-12-18 Draft* §5.4.[7]). It is a property of the Conception Event. The figure above (for the Date of Work attribute) already provides modeling for that notion.

**Original language of the Work** (*FRANAR 2003-12-18 Draft* §5.4.[8]). It is a property of the Representative Expression for the Work. See below, under the Language of Expression attribute.

*March 23rd.*

Martin Doerr proposes a new definition (Scope Note) for Work, based on Richard P. Smiraglia’s conceptions. The Group examines and reviews this proposed definition. Once reviewed, it reads as follows:

“A Work is the coherent evolution of a distinct intellectual conception into one or more expressions that are dominated by the conception. A Work may be elaborated by one or more Actors simultaneously or over time. A Work may have members that constitute components of the overall conception or that are alternatives of it. A Work can be an individual work, in which case it represents the conception that is embedded in an atomic, Self-Contained Expression, or a Work can be Complex. Any Complex Work consists of members that are either Complex themselves or Self-Contained Expressions. The member relationship of Work is based on the conceptional relationship, and should not be confused with the

structural parts of an expression, that even might be taken from other work. Note that members of a work may or may not represent the conception of the Work as a whole. Whereas a translation reinterprets the whole, a volume of a trilogy represents a part of the conception.

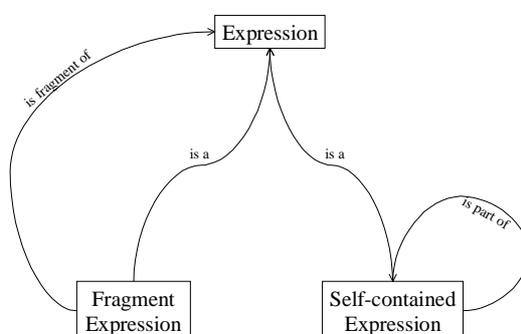
Inherent to the notion of work is the completion of recognizable outcomes of the work. Normally creators would characterize or one can recognize an outcome of a work as finished. These units, i.e. the Self-Contained Expressions, are regarded as the atoms of more complex work. A Self-Contained Expression may contain expressions or parts of expressions from other work, such as citations or items collected in anthologies. Even though they are incorporated in the Self-Contained Expression, they are not regarded as becoming members of the container work by their inclusion, but are rather regarded as “foreign” or referred elements.

As the conception of a work is part of a mental process of one or more persons, only indirect evidence about it is at our hands. Those can be contextual information such as the existence of an order for a work, reflections of the creators themselves that are documented somewhere, and finally the expressions of the work created. As ideas normally take shape during discussion, elaboration and implementation, it is not reasonable to assume that a work starts with a complete conception. Moreover, it can be very difficult or impossible to define the whole of the conception of a work at some given time. The only objective evidence for such a notion can be based on a stage of expressions at a given time. In this sense, self-contained expressions serve as a kind of “snap-shots” of a work or part of it.”

That definition needs clarifying examples, and rephrasing on some details, but it is regarded as a sound basis.

A long discussion follows, about the tricky notion of whole/part relationships. It is not true to state that any Work can be decomposed into any number of Individual Works that in turn can be regarded as “parts” of the original Work. If the resulting “part” Works have not been conceived as wholes by their creator, they cannot be regarded as Individual Works. If someone else decomposes a Work into units that do not correspond to “wholes”, this very activity is only possible at the Expression level (i.e., a *text* (in the broadest sense of that term) is being torn into pieces); the resulting creation of part Expressions (such as a list of citations) may convey a “Work” on their own, but that Work is not representative for the conceptions (continuity, common ideas) that permeate the original Work, and therefore cannot be regarded as “parts” of that Work, the same way as a statue fragment can no longer be regarded a “part” of a statue once it has been detached from that statue. It *used to be* a part of it, but it is *no longer* a part of it. One should in particular note the different notion of identity between work and expression: work is identified by conception, expression by structure.

At the Expression level, it is important to recognize the distinction between “Self-contained Expressions” (i.e., Expressions that constitute “wholes”), and “Fragment Expressions” (i.e., Expressions that were detached from a Self-contained Expression). The following figure shows the interrelationships that exist between those classes:

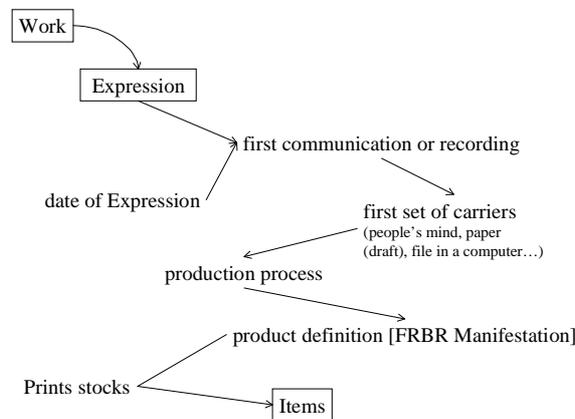


Expression attributes are examined one by one.

**Title of the Expression** (*FRBR Final Report* §4.3.1, p. 36). Same figure as above, for the Work title attribute. An example of uniform title for an Expression can be: “Hamlet (Slovenian)”. Expression Identifier and Work Identifier are subclasses of (CIDOC CRM) Conceptual Object Identifier.

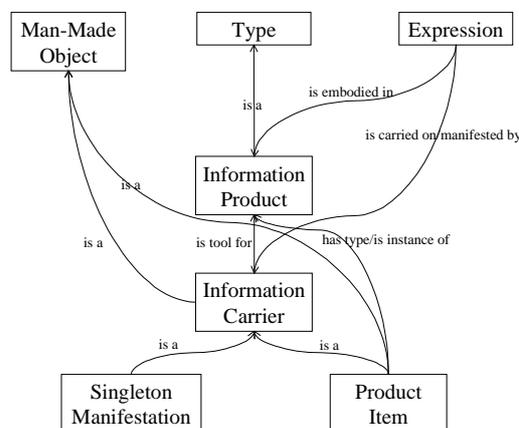
**Form of Expression** (*FRBR Final Report* §4.3.2, p. 36). The name of this attribute should be reworded: “**Type of the Expression**”, to be consistent with the rewording proposed for the Work form attribute. The “Type of the Expression” attribute has to be compatible with the Constraining Super-Type of the Work, i.e., with the type of the Representative Expression.

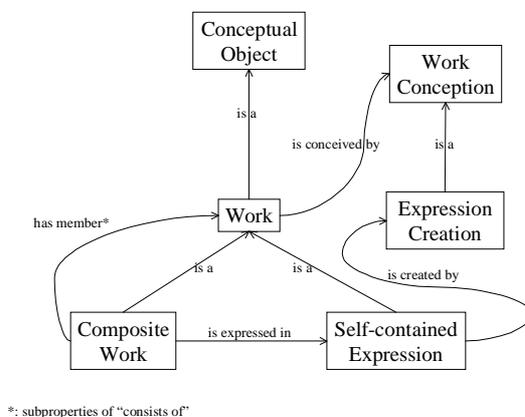
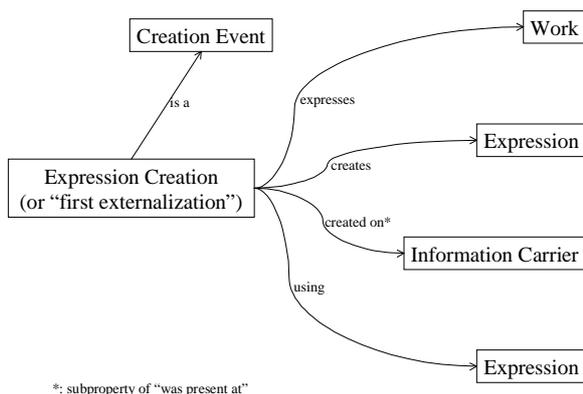
**Date of Expression** (*FRBR Final Report* §4.3.3, p. 36). This attribute can be expressed as two triples: An Expression (class) is created by (property) a Creation Event (class) at a (property) Time (class). But this is not sufficient. How can we know the date of the Creation Event for a given Expression? Expression is an abstract entity, so we have to rely on a physical evidence. The Expression is actually created the first time it is communicated or recorded (“first draft”, either as a manuscript on paper or as an electronic file). FRBR regards manuscripts as manifestations. The date of Creation is inferred from the date the “first draft” was produced. Anyhow, it is necessary to distinguish between the FRBR<sub>ER</sub> Manifestation entity (which reflects a production process) and the first (set of) carrier(s) of the first communication or recording of a given Expression of a Work:



*March 24th.*

Martin Doerr insists again that we should distinguish between a Singleton Manifestation and an Information Product. This distinction can be schematized as follows:





We accept the axiom that a *Work* can be taken up by another person (than its originator).

Expression attributes are examined one by one (continued).

**Language of Expression** (*FRBR Final Report* §4.3.4, p. 36). This attribute is identical with the CIDOC CRM triple: E33 Linguistic Object P72 has language E56 Language.

**Other Distinguishing Characteristic** (*FRBR Final Report* §4.3.5, p. 36). This is a qualifier (see above, similar attribute at the *Work* level). Uniform Title Assignment (class) uses qualifier (property) Uniform Title Qualifier (class).

**Extensibility of Expression** (*FRBR Final Report* §4.3.6, p. 37). This attribute should be at the *Work* level. Martin Doerr: "(1) Extensibility is not a capability of an Expression. (2) Authors or creators may have expressed intention to create complementary Expressions. (3) As a result of a derivation process from a known original, the current Expression may be found incomplete with regard to the original.". (2) and (3) are arguments at the *Work* level.

**Revisability of Expression** (*FRBR Final Report* §4.3.7, p. 37). This attribute also should be at the *Work* level, for the same reasons.

**Extent of the Expression** (*FRBR Final Report* §4.3.8, p. 37). This is a dimension, which can be modeled as in CIDOC CRM: Expression (class) has dimension (property) Dimension (class). It is a common feature that can be verified on any manifestation.

**Summarization of Content** (*FRBR Final Report* §4.3.9, p. 37). This can be either a link to another Expression (if the summarization has been made by someone else than the creator of the *Work* and its Representative Expression), or to a part of the Expression itself (if it is extracted, either mechanically or by the cataloguer, from the Expression itself). In the first case, this can be modeled as the triple: Expression (class) is annotated by (property) Expression (class), where "is annotated by" is a super-property for the sub-property "is summarized by". In the second case, this can be modeled as the triple: Expression (class) has fragment (property) Expression Fragment (class), where Expression Fragment can be instantiated by an abstract, a list of chapters, etc.

**Context for the Expression** (*FRBR Final Report* §4.3.10, p. 37). See above, under Context for the Work.

**Critical Response to the Expression** (*FRBR Final Report* §4.3.11, p. 37). Triple: Expression (class) is annotated by (property) Expression (class).

**Use Restrictions on the Expression** (*FRBR Final Report* §4.3.12, p. 38). Triple: Expression (class) is subject to (property) Right (class). This is quite analogous to CIDOC CRM property P104.

**Sequencing Pattern (Serial)** (*FRBR Final Report* §4.3.13, p. 38). A more convenient place for this attribute would be under a subclass of Composite Work, which would be Serial – to be modeled later.

**Expected Regularity of Issue (Serial)** (*FRBR Final Report* §4.3.14, p. 38). A more convenient place for this attribute would be under a subclass of Composite Work, which would be Serial – to be modeled later.

**Expected Frequency of Issue (Serial)** (*FRBR Final Report* §4.3.15, p. 38). A more convenient place for this attribute would be under a subclass of Composite Work, which would be Serial – to be modeled later.

**Type of Score (Musical Notation)** (*FRBR Final Report* §4.3.16, p. 38). This should be contracted with Type of Expression.

**Medium of Performance (Musical Notation or Recorded Sound)** (*FRBR Final Report* §4.3.17, p. 38). This can be interpreted as a peculiar case of Dimension. Triple: Expression (class) has dimension (property) Instrumentation Count (class), with: Instrumentation Count IS A Dimension. The value of each instance of the Unit class associated to an instance of Instrumentation Count would be the name itself of the instrumental or vocal medium of performance.\*

**Scale (Cartographic Image/Object)** (*FRBR Final Report* §4.3.18, p. 39). There is a problem here. To be modeled later (it was discussed to be either a dimension or a kind of summary). Basically, it is a ratio. Is a ratio a Dimension?

**Projection (Cartographic Image/Object)** (*FRBR Final Report* §4.3.19, p. 39). This is a Summary element. See above, under “Summarization of Content”.

**Presentation Technique (Cartographic Image/Object)** (*FRBR Final Report* §4.3.20, p. 39). This is a Type.

**Representation of Relief (Cartographic Image/Object)** (*FRBR Final Report* §4.3.21, p. 39). This is a Type.

**Geodetic, Grid, and Vertical Measurement (Cartographic Image/Object)** (*FRBR Final Report* §4.3.22, p. 39). This is a Type.

**Recording Technique (Remote Sensing Image)** (*FRBR Final Report* §4.3.23, p. 39). Requires further thinking. A Type?

**Special Characteristic (Remote Sensing Image)** (*FRBR Final Report* §4.3.24, p. 40). Requires further thinking.

**Technique (Graphic or Projected Image)** (*FRBR Final Report* §4.3.25, p. 40). This is a Type, which can be modeled by the triple: Expression Creation (class) has technique (property) Type (class). This is quite analogous to the CIDOC CRM property P32 used general technique, the Domain class of which is E11 Modification Event. Which leads us to declare that Expression Creation IS A Conceptual Creation *and* IS A Modification Event.

All the work done by the FRBR/CRM Harmonization Group during its Meeting #2 is summed up in only one figure that was created by Stephen Stead. The content of this figure will also be produced as a textual definition in the style of the CRM definition.

*March 25th.*

On the last day we agreed on the following issues:  
Terminology for classes

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\* This is only one of the possible mappings. We also discussed the possibility of dealing with Medium of Performance as a peculiar case of Classification, or of Summarization.

Specification of properties  
 Graphical representation of the model so far  
 First scope notes

We discussed the notion of a product and any other singleton objects. We distinguished between “Manifestation – Product Type” and “Manifestation – Singleton”.

We agreed that the “Items” of a “Manifestation – Product Type” have a relation “has type” (or inverse “instance of”) to the “Manifestation – Product Type”. Copies of a book are not regarded to be instances of the same “Manifestation – Product Type” as the “original” “Manifestation – Singleton”. The “original” “Manifestation – Singleton” is “used as source material by” an instance of the Carrier Production Event entity, which results in the production of a number of copies. A printed book always has the nature of a class, instance of “Manifestation – Product Type”. We assign the ISBN as an attribute of the “Manifestation – Product Type”.

One could define Singletons as a pair consisting of:

- a “Manifestation – Product Type” that has only one instance;
- and the instance itself.

This seems not to be very helpful or intuitive, in particular as singletons play a distinct role as “first carriers” of an Expression or “blueprints”, which are regarded to have the same status.

We clarified that the Production Event follows a Production Plan and produces Items using source material from Information Carriers, whereas an Expression Creation implies a first carrier (one or more but a fixed number) on which it is created. This covers even cases in which the first carriers are humans listening and remembering, but typically first carriers are “Manifestation – Singletons”. We defined this singleton manifestation as the unique copy we have that gives us information about the content of an Expression for any further reasoning or use.

Then we checked the consistency of the overall schema drawn by Steve.

We found that we had a different understanding of the notion of a “composite” work, and changed the term to “Complex Work”. A “Complex Work” may be planned initially in parts, such as a trilogy, or new parts may appear over time. The other interpretation was that a “Composite Work” is initially planned in self-contained parts. The idea behind the decision is that it is not possible to distinguish easily from the point of view of conception what is simultaneous and what is sequential. However, the expressions (or parts of them) appear at a definite point in time, and can render the notion of a “snap-shot” of a work at a certain time.

We make a distinction between Work and Expression: We assume that a conception has at least a partial notion of completeness in the sense that authors normally can determine that they have finished an expression, and readers normally can recognize an expression as finished, whereas we may have any fragment of an Expression at hand. We do not analyze conception into conception of fragments of an Expression, since that seems not to provide any more information than the fragment already. We said that Work is a subclass of the CIDOC CRM Conceptual Object class.

We concluded that:

- “Work” *has member* “Self-Contained Expression”
- “Expression Fragment” is subsumed in (“IsA”) “Expression”
- “Self-Contained Expression” is subsumed in (“IsA”) “Expression”
- “Self-Contained Expression” has part “Self-Contained Expression”
- “Expression Fragment” is fragment of “Expression”

## 3rd Meeting on FRBR/CRM Harmonization

London(United-Kingdom), Imperial College,  
14-16 February 2005

Participants: Trond Aalberg (NTNU, Norway), Martin Doerr (ICS-FORTH, Greece; chair), Dolores Iorizzo (The Imperial College, United-Kingdom), Kim Sung-Hyuk (Sookmyung Women's University, South Korea), Faith Lawrence (University of Southampton, United-Kingdom), Patrick Le Bœuf (National Library of France), Dan Matei (Institute of cultural heritage, Romania), Christian Emil Ore (University of Oslo, Norway, and chair of ICOM CIDOC), Stephen Stead (Paveprime Ltd, United-Kingdom), Maja Žumer (National and University Library of Slovenia).

Excused: Caroline Brazier (British Library, United-Kingdom, & ICABS), Nicholas Crofts (Musées d'art et d'histoire de la ville de Genève, Switzerland), Alan Danskin (British Library, United-Kingdom, & ICABS), Mauro Guerrini (University of Florence, Italy), Knut Hegna (University of Oslo, Norway), Siegfried Krause (Germanisches Nationalmuseum, Germany), Karl-Heinz Lampe (Zoologisches Forschungsinstitut & Museum Alexander Koenig, Germany), Glenn Patton (OCLC, USA), Gerhard Riesthuis (University of Amsterdam, The Netherlands), Matthew Stiff (The English Heritage, United-Kingdom), Barbara Tillett (Library of Congress, USA).

*14 February 2005*

Martin Doerr summed up some of the main conclusions that ensued from Meeting #2.

In order to be consistent with Richard Smiraglia's theory of '*a work*', we will consider that *intellectual continuity* is an identity criterion for the Work notion. The social and intellectual importance of a Work lies in the fact that a Work is a continuing process that has distinct texts as its temporal parts. In that regard, a translation can be said to be a *part* of the Work. A Work can split in as many parts as useful at the same time ("spatial part") or at different times ("temporal parts").

The notion of Self-Contained Expression, which was defined during Meeting #2, has to do with the fact that a creator has an idea of when an expression of his Work is complete, which can normally be verified independently from formal characteristics or be declared by the creator him/herself.

The ontological value of a collection is in the act of collecting, not in the sum of the collected parts. Therefore, the work of a collection of poems makes use of, but does not comprise the poems themselves, nor does it continue the work of the poems.

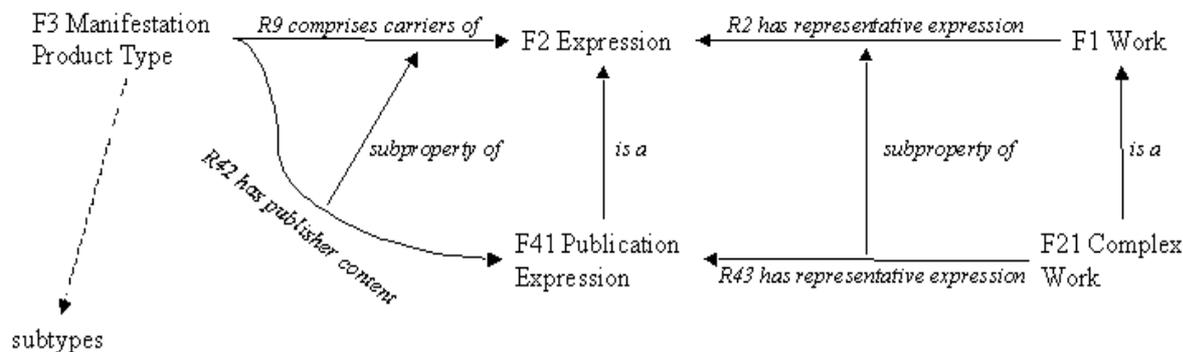
An Expression is defined to be fixed in time, it cannot evolve over time; only the Work can evolve over time. This is a deliberate ontological choice to substantiate the difference between Work and Expression..

Whenever we speak of "Work", we have actually to discuss 3 distinct notions:

- Work as defined in FRBR (or rather, as interpreted from FRBR, for the definition provided in FRBR is not good);
- Work as we understand the term in daily discourse;
- Class F1 Work as defined in OO\_FRBR (result of Meeting #2).

Before we started to discuss Manifestation attributes, we recognised the existence of a new class: Publisher-Level Expression (which we later renamed F41 Publication Expression). We first understood that new class as representing the complete "textual" (in the broad sense) content intended by a publisher (i.e., the sum of the Expression embodied in the Manifestation plus everything that a publisher decides should be in the Manifestation, including text found on the title page, logo, etc.), but Stephen Stead objected that this would imply that we model every published item as an "anthology", therefore as a distinct work, which in turn would imply that we could just use the class Complex Work, without needing any additional class. We then redefined F41 Publication Expression as consisting solely of the specific

paratextual input by the publisher (title page, logo or imprint, cover text, advertisements, etc.). Martin Doerr drew a figure that shows how this new class fits in the overall architecture:



Then we examined the Manifestation attributes, for the class we identify as F3 Manifestation Product Type. (After that process, we went through the Manifestation attributes again, this time having the class F4 Manifestation-Singleton in mind).

*Examination of the Manifestation attributes, having F3 Manifestation Product Type in mind.*

#### 4.4.1. Title of the Manifestation

In all cases, this maps to:

F3 Manifestation Product Type P102 has title 4.4.1. = E35 Title  
P102.1 has type...

In addition, in such cases when that title was actually found on a copy of the publication (e.g., title proper; excluding key title and supplied title), this also maps to:

F41 Publication Expression P106 is composed of 4.4.1. = E35 Title

(P106 being inherited from E73 Information Object, as both F41 and E35 are subclasses of E73 and P106 has E73 for both its domain and range).

#### 4.4.2. Statement of Responsibility

This was first mapped to:

F41 Publication Expression P106 is composed of E34 Inscription  
E34 Inscription P3 has note E62 String  
P3.1 has type E55 Type  
E34 Inscription P129 is about E39 Actor  
E39 Actor P14B performed E65 Creation Event  
E65 Creation Event etc.

Later during the Meeting, it was recognised that E34 Inscription is not the appropriate class for that (E34 Inscription is literally meant as a text attached in some way to an object), and that it would be more relevant to use E33 Linguistic Object, which is a superclass of E34. As a consequence, the UNIMARC-

to-CRM mapping that Patrick Le Bœuf has begun to prepare for the SCULPTEUR Project will have to be reviewed.

➔ For the CRM-SIG: the scope note for E33 Linguistic Object should explicitly state that the actual text of an instance of E33 Linguistic Object may be introduced as a description through P3 has note, following the same mechanisms as for E34 Inscription.

At this point, Stephen Stead asked what the relationship is between F41 Publication Expression and F20 Self-Contained Expression. Martin Doerr answered that this would have to be discussed and clarified later on ###.

There was some debate about whether the conceptual model that we strive to build should account for such information elements as Statement of Responsibility as found on a title-page or not. Maja Žumer felt it as too old-fashioned and too much bound to current ISBD practice; future catalogues should focus only on the actual relationship between the content of a publication and contributors to that content, not on the way that relationship is stated on a title-page. Patrick Le Bœuf argued that it can be interesting, under some circumstances, to record the possible discrepancy between that relationship and the statement found on a publication. Martin Doerr agreed that Statement of Responsibility (as found on the document) can be a useful device for the identification of a given publication (part of F25 Expression Identifier ?).

#### *4.4.3. Edition/Issue Designation*

This maps to:

F41 Publication Expression P106 is composed of E33 Linguistic Object (specialised as 4.4.3.) P3 has note E62 String

Besides,

4.4.3. (IsA E33 Linguistic Object) P106B forms part of F25 Expression Identifier

which means that 4.4.3. relates to the Work shared by other Expressions, without making it necessary to explicate that indirect relationship to sibling Expressions.

It was recognised that it can happen that an instance of Edition Designation pertains to the manifestation level rather than to the expression level (e.g., “large print edition”), which makes it difficult to state once and for all what 4.4.3. maps to. On the whole however, it seems appropriate to state that 4.4.3. forms part of an Expression Identifier.

#### *4.4.4. Place of Publication/Distribution*

These are actually two distinct information elements, with very different meanings. We focussed on Place of Publication only, postponing Place of Distribution to further discussion.

As a rule, Place of Publication maps to:

F41 Publication Expression P94B was created by E65 Creation Event P14 carried out by E39 Actor P74 has current or former residence E53 Place P87 is identified by E44 Place Appellation

Patrick Le Bœuf suggested that, for hand-press materials, Place of Publication could also map to E51 Contact Point; but after checking on ISBD(A) while drafting the present minutes, he recognised that this is untrue.

In addition, as Place of Publication is normally copied after the information such as found on the publication, this information element also maps to (unless the field begins with a square bracket):

F41 Publication Expression P106 is composed of E33 Linguistic Object (specialised as 4.4.4.) P3 has note E62 String

#### 4.4.5. *Publisher/Distributor*

We focussed on Publisher; Distributor will be discussed later.

Basically, this information element is about the following relationship:

F41 Publication Expression P94B was created by E65 Creation Event P14 carried out by E39 Actor P131 is identified by E82 Actor Appellation

[a relationship that is also expressed in FRBR 5.2.2. (p. 61-62) as the “produced by” relationship.]

Typically, that information element is stated such as found on a copy of the publication, which also implies the following mapping (again, provided the field does not begin with a square bracket):

F41 Publication Expression P106 is composed of E33 Linguistic Object (specialised as 4.4.5.) P3 has note E62 String

#### 4.4.6. *Date of Publication/Distribution*

We focussed on Date of Publication, postponing Date of Distribution.

In FRBR, Date of Publication can apply to the date of publication such as found on a copy of the publication, as well as to a normalised expression of that date that enables mathematical processing, and retrieval.

If we are talking about the Date of Publication such as found on a copy of the publication (e.g., “.M.D.L.I.V.”, or “die visitationis Beatae Virginis Mariae 1497”), 4.4.6. is nothing more than a mere Time Appellation and maps to:

F41 Publication Expression P106 is composed of E33 Linguistic Object (specialised as 4.4.6.) P3 has note E62 String

and

F41 Publication Expression P94B was created by E65 Creation Event P4 has time-span E52 Time-Span P78 is identified by E49 Time Appellation

But a normalised formulation of the Date of Publication will make it possible to make assumptions about a terminus ante quem for the Creation Event of the Publication Expression:

F41 Publication Expression P94B was created by E65 Creation Event P4 has time-span E52 Time-Span P82 at some time within E61 Time Primitive (instance =[ infinity : value of 4.4.6.]

#### 4.4.7. *Fabricator/Manufacturer*

To be discussed later. [The Manufacturer is subject (“carried out by”) of open number of production events of instances of instances of F3 Manifestation Product Type i.e. following the characteristics defined by the F3. It seems that MetaCRM would be helpful here. Should we use F40 Carrier Production Event, or define a metaproperty F3 Manifestation Product Type CLP108B should have been produced by

E12 Production Event? Or perhaps both devices: F3 Manifestation Product Type CLP108B should have been produced by F40 Carrier Production Event?]

#### *4.4.8. Series Statement*

It was recognised that a series is a specialisation of F21 Complex Work.

In cataloguing practice, there is a distinction between the mere series statement as found on a copy of the publication (Manifestation attribute 4.4.8.) and the actual relationship between the monograph and the series it belongs to (as shown in FRBR 5.3.1.1., Table 5.2.). It can be interesting, for identification purposes, to record the possible discrepancy between the title of a series as found on a document and the more frequent title under which that series is known.

Series Statement contains actually two distinct information elements:

- identifying elements for the series (title and also, although FRBR does not make the point, ISSN);
- a number designating the sequential position of the monograph within the series.

The identifying elements of Series Statement map to both:

F41 Publication Expression P106 is composed of E33 Linguistic Object (specialised as 4.4.8.) P3 has note E62 String  
and

F41 Publication Expression P106B is part of F?? Edition Series (subclass of F21 Complex Work)

The numbering element is part of the F25 Expression Identifier for the F41 Publication Expression through the newly defined property R44 has identification element:

F41 Publication Expression R44 has identification element E62 String (instance = the numbering element of 4.4.8.)

*15 February 2005*

#### *4.4.9. Form of Carrier*

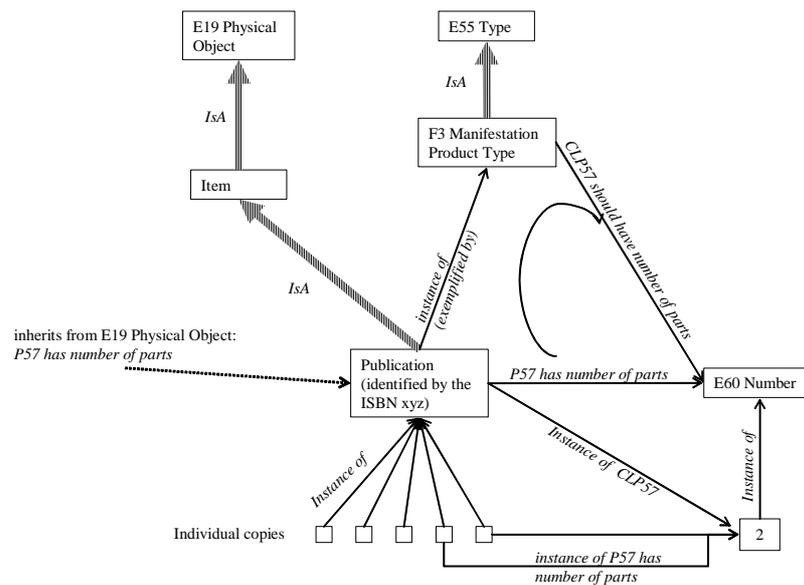
This was recognised as a Type:

F3 Manifestation Product Type P2 has type 4.4.9. = E55 Type

[Should it not be a Class Property: CLP2 has type? See next attribute 4.4.10.]

#### *4.4.10. Extent of the Carrier*

For this attribute MetaCRM is required. Martin Doerr drew a figure showing that F3 Manifestation Product Type is actually a metaclass, which is only instantiated/exemplified by classes (individual publications) which in turn are instantiated/exemplified by physical objects (individual copies). In that sense, each individual publication, viewed as a set of copies, can be said to be a subclass (IsA relationship) of Item:



This construct allows us to define the following Class Property: CLP57 “should have” number of parts (domain: F3 Manifestation Product Type, range: E60 Number), through which it is possible to express the relationship between a Manifestation Product Type and the Number of parts that all carriers produced according to a F39 Production Plan based on that Manifestation Product Type are, as a principle, supposed to have (at least at the time of production):

F3 Manifestation Product Type CLP57 “should have” number of parts E60 Number

Similarly, MetaCRM allows us to define another Class Property: CLP128 should carry: F3 Manifestation Product Type CLP128 should carry F41 Publication Expression. As F3 is a subclass of E55 Type, it cannot be the domain of property: P128 carries, which expresses the relationship between something physical and an immaterial content infixed on it; but the Class Property: CLP128 should carry expresses the fact that all physical copies produced according to a F39 Production Plan based on an instance of F3 Manifestation Product Type are supposed to carry the same instance of F41 Publication Expression (even though the title page may have been torn or in some way altered on a given subset of copies, and even though some accident may have occurred during the production process, leaving, for instance, the title page blank on a given subset of copies).

#### 4.4.11. Physical Medium

Once again we have to define a Class Property, that makes it possible to express cross-categorical reasoning between a metaclass and a class:

F3 Manifestation Product Type CLP45 should consist of E57 Material

#### 4.4.12. Capture Mode

That is a Type:

F3 Manifestation Product Type P2 has type 4.4.12. = E55 Type

[Should it be a Class Property: CLP2 has type? or CLP2 “should” have type? or CLP2 “is supposed to” have type? or CLP2 “usually” has type?]

#### *4.4.13. Dimensions of the Carrier*

Once again Class Properties as defined in MetaCRM are helpful, as a “Type” cannot have physical dimensions:

F3 Manifestation Product Type CLP43 should have dimension E54 Dimension P3 has note E62 String

#### *4.4.14. Manifestation Identifier*

The class to which this attribute maps is clearly E75 Conceptual Object Appellation, but in the CIDOC CRM there is no specialisation of P1 is identified by for E28 Conceptual Object.

→ Question for the CRM-SIG: Should we define a specialisation of P1 is identified by, the domain of which would be E28 Conceptual Object, and the range of which would be E75 Conceptual Object Appellation?

#### *4.4.15. Source for Acquisition/Access Authorization*

This matches the CRM notion of E30 Right:

F3 Manifestation Product Type CLP104 is subject to E30 Right P3 has note E62 String  
and

F3 Manifestation Product Type CLP105 right held by E39 Actor P131 is identified by E82 Actor Appellation

#### *4.4.16. Terms of Availability*

F3 Manifestation Product Type CLP104 is subject to E30 Right P3 has note E62 String

[Besides, as 4.4.16. is said in the *FRBR Final Report* to also cover the notion of price, should we map it to:

F3 Manifestation Product Type CLP43 has dimension E54 Dimension P3 has note E62 String

as well?]

#### *4.4.17. Access Restrictions*

F3 Manifestation Product Type CLP104 is subject to E30 Right P3 has note E62 String

→ Question for the CRM-SIG: maybe the notion of E30 Right in CIDOC CRM might need a generalization.

#### 4.4.18. *Typeface (Printed Book)*

This is a mere note:

F3 Manifestation Product Type P3 has note E62 String

[Perhaps it could also be modelled as a Type?:

F3 Manifestation Product Type CLP2 “should have” type 4.4.18. = E55 Type]

#### 4.4.19. *Type Size (Printed Book)*

When this attribute corresponds to a note, it maps to E62 String; when it corresponds to a coded value (as in fixed length fields of MARC formats, for instance), it maps to a E55 Type:

F3 Manifestation Product Type P3 has note E62 String

or

F3 Manifestation Product Type CLP2 “should have” type 4.4.19. = E55 Type

#### 4.4.20. *Foliation (Hand-Printed Book)*

In the context of FRBR reviewing, Gunilla Jonsson had suggested that this attribute is misnamed; the definition for this attribute makes it clear that the attribute that was really intended by the FRBR originators was actually “Format (Hand-Printed Book)”.

When this attribute corresponds to a note, it maps to E62 String; when it corresponds to a coded value (as in fixed length fields of MARC formats, for instance), it maps to a E55 Type:

F3 Manifestation Product Type P3 has note E62 String

or

F3 Manifestation Product Type CLP2 “should have” type 4.4.20. = E55 Type

#### 4.4.21. *Collation (Hand-Printed Book)*

This attribute corresponds to a mere note:

F3 Manifestation Product Type P3 has note E62 String

#### 4.4.22. *Publication Status (Serial)*

This attribute means that a statement is made of whether the serial as Work is completed or not, at the date the statement was made.

Serials are regarded as *Works with temporal parts*, sequences of manifestations with common features; the Group decided that serials are *not by themselves manifestations* (“*publications*”), but *only Works* – Works that consist of manifestations, but that have no Manifestation by themselves. Only a Work can be said to be “ongoing” or not; neither an Expression nor a Manifestation can be said to be “ongoing”. An Expression and a Manifestation exist once and for all.

As a consequence, 4.4.2. Publication Status should be modelled as a E55 Type of F21 Complex Work.

That view should change many things in the way librarians traditionally deal with serials. It also matches difficulties encountered by implementers of the FRBR model.

Besides, it also poses an interesting question for the CRM-SIG:

➔ How should we model the “end” of a Work? In CIDOC CRM we do not regard E70 Stuff as having temporal parts. Or, is this end only an expectation, because the work may nevertheless be resumed?

#### 4.4.23. *Numbering (Serial)*

Once again, this attribute should be modelled at the Work level – or more specifically, at the level of a new class that should be defined: F?? Publication Work (i.e., a subclass of F21 Complex Work that is defined as consisting exclusively of publications, such as series and periodicals are).

#### 4.4.24. through 4.4.34.

All of those attributes can be modelled as follows: when they correspond to notes, they map to E62 String; when they correspond to coded values (as in fixed length fields of MARC formats, for instance), they map to E55 Type:

F3 Manifestation Product Type P3 has note E62 String

or

F3 Manifestation Product Type CLP2 “should have” type 4.4.20. = E55 Type

Dolores Iorizzo asked that a note be made about all of those types, as they can be useful for TEI, EAD, and MPEG as well.

Martin Doerr replied that those attributes have to be dealt with separately, as they are an overspecialisation in a conceptual model; there is no further relationship between them and any other relevant entity in the same model.

#### 4.4.35. *System Requirements (Electronic Resource)*

That attribute such as it stands was deemed irrelevant; Faith Lawrence made the point that some of the elements it contains would be better described as format of compatibility, i.e. a E55 Type – an issue for the ISBD Review Group.

Patrick Le Bœuf argued that it should also map to E62 String as it is a part of F41 Publication Expression. A long discussion ensued, as to whether the fact that an information element was copied after the resource described or found in another source is relevant or not. Martin Doerr made the point that the main thing is to make an assertion about the resource described, whatever the source on which that assertion is resides. The whole debate has to do with the notion of “reification”: any information can be said to reside on a given source; that source is not necessarily always stated, in particular at the conceptual level of CIDOC CRM, where the main thing is to make propositions about the real world, not to state on what source those propositions reside. In library practice, there is a traditional, strong distinction between information “as found on the item in hand”, and information supplied through authority control; is it relevant to model that traditional distinction in a conceptual model? Is it wise to ignore it, as it permeates all the cataloguing theory and practice? Should it be regarded as old-fashioned and to be abandoned in future cataloguing rules, or should it be reaffirmed and accounted for in an integrated conceptual level? Martin Doerr opined that the distinction should be reflected in a conceptual model only inasmuch as the information “as found on the item in hand” is relevant for the purpose of identifying a given resource (i.e., Statement of Responsibility, Place of Publication, Statement of Series, etc. are relevant, but not such notes as System Requirements). General assertions about where the information was taken from apply equally to any class and property instance of the model. As such, these mechanisms can be described in a model independent from the model about the perceived or conceived reality.

#### 4.4.36. *File characteristics (Electronic Resource)*

That attribute is regarded as a E55 Type.

#### 4.4.37. *Mode of Access (Remote Access Electronic Resource)*

The Group had some difficulty in understanding what that attribute covers at all. Is it the notion of “protocol” that is actually meant?

#### 4.4.38. *Access Address (Remote Access Electronic Resource)*

There was a long debate about that attribute. We came to the conclusion that an electronic resource downloaded on a user’s hard disk should always be regarded as an Item. Christian Emil Ore made the point that there is a legal issue in there: copyright is broken when you access a file through a URL. As far as I can remember, however, there was no final conclusion as to what 4.4.38 actually maps to.

*Examination of the Manifestation attributes, this time, having F4 Manifestation-Singleton in mind.*

Two cases should be considered: either they capture the very first Expression, or they are more or less derivatives.

#### 4.4.1. through 4.4.3.

No difference for these attributes between F3 Manifestation Product Type and F4 Manifestation-Singleton. For 4.4.3. Edition/Issue Designation: this attribute has to do with a version statement; **Versioning should be modelled.**

#### 4.4.4. *Place of Publication/Distribution*

This attribute is not valid for a F4 Manifestation-Singleton. However, we should model the Place of the Production Event for a Manifestation-Singleton. A F31 Expression Creation is always co-occurring with the E12 Production Event of a F4 Manifestation-Singleton (i.e.: when you scribble the first draft of a poem on a sheet of paper, you produce a manifestation; when Milton dictated his poems to his secretary, the process resulted in the modification of the secretary’s mind and in the production of a new manifestation; even when you keep your draft poem for yourself, your memory becomes a new manifestation-singleton); it seems therefore relevant to make F31 Expression Creation a subclass of E12 Production Event: the place where the expression is created is necessarily the place where the manifestation-singleton is produced.

This would map to:

F4 Manifestation-Singleton was produced by F31 Expression Creation P7 took place at E53 Place

Probably we should better create a subproperty of “was produced by”, such as “manifestated”?.

#### 4.4.5. *Publisher/Distributor*

The notion of publication – and therefore of publisher – is incompatible with the notion of F4 Manifestation-Singleton.

#### 4.4.6. *Date of Publication/Distribution*

This attribute as such is incompatible with the notion of F4 Manifestation-Singleton, but we should consider:

F4 Manifestation-Singleton was produced by F31 Expression Creation P4 has time-span E52 Time-Span P82 at some time within E61 Time Primitive

#### 4.4.7. *Fabricator/Manufacturer*

F4 Manifestation-Singleton was produced by F31 Expression Creation P14 carried out by E39 Actor P131 is identified by E82 Actor Appellation

#### 4.4.8. *Series Statement*

This attribute is incompatible with the notion of F4 Manifestation-Singleton.

#### 4.4.9. *through 4.4.13.*

Everything that was modelled as a Class Property (CLP) for F3 Manifestation Product Type can be modelled as a Property (P) for F4 Manifestation-Singleton.

#### 4.4.14. *Manifestation Identifier*

This attribute does not apply to F4 Manifestation-Singleton. E42 Object Identifier suffices.

#### 4.4.15. *Source for Acquisition/Access Authorization; 4.4.16. Terms of Availability; 4.4.17. Access Restrictions*

Those attributes can be modelled through P104 is subject to E30 Right, P105 right held by E39 Actor, P49 has former or current keeper E39 Actor, P51 has former or current owner E39 Actor.

#### 4.4.18. *Typeface*

This maps to E55 Type. In the case of F4 Manifestation-Singleton, the attribute can also cover the script type of a manuscript (handwriting), e.g. Gothic cursive, Humanistic cursive, Caroline minuscule...: a feature that was not accounted for in FRBR, as 4.4.18. Typeface was unduly restricted to printed books.

*4.4.19. through 4.4.21.*

No difference for these attributes between F3 Manifestation Product Type and F4 Manifestation-Singleton.

*4.4.22. Publication Status (Serial); 4.4.23. Numbering (Serial)*

Those attributes do not apply to F4 Manifestation-Singleton.

*4.4.24. through 4.4.30.*

Those attributes map to E55 Type.

*4.4.31. Reduction Ratio (Microform)*

This attribute does not apply to F4 Manifestation-Singleton. [Although I would be unable to explain why]

*4.4.32. through 4.4.38.*

??? [nothing in my notes]

*16 February 2005*

The third day of our meeting began with a resumption of the debate on the issue of redundancy between information “as found on the document” and as elaborated and re-structured by cataloguers through bibliographic and authority control. Maja Žumer opined that that redundancy is old-fashioned and pointless and should be abandoned in future catalogues. Stephen Stead, who had been absent the day before, expressed the thought, on the contrary, that it can be helpful, e.g. in order to retrieve all documents that their publishers claimed, for purposes of prestige, were published in a place where they actually had not been published.

There was also a debate around the notion of “copying”: what are the properties of the activity of copying? What does it produce? Can we have the same approach to photocopying of printed materials and downloading and copying of electronic resources?

Stephen Stead did not agree that all copies of an electronic file are necessarily instances of F4 Manifestation-Singleton. A debate ensued, at the end of which we agreed that any electronic resource, as it resides on a physical carrier, is an Item, but not necessarily a F4 Manifestation-Singleton. Downloading results in the creation of a new Item. But there are electronic files that *are* instances of F4 Manifestation-Singleton (the original). Stephen Stead asked: Do they become instances of F3 Manifestation Product Type from the moment they are copied? Martin Doerr replied: No; the problem is actually more general and goes beyond electronic resources. Everything can be copied more or less mechanically, and the “alike” quality is to be found between and among the copies themselves, not between the copies and the original. Eventually, we decided to create a new class: F?? Reproduction Event. That new class makes it possible to account for the legal distinction between private copying for the purpose of “fair use”, and mass production for the purpose of dissemination. There was some debate in order to determine where to draw the line between the newly created Reproduction Event and the CIDOC CRM class E12 Production Event, and whether that distinction was needed at all. According to Martin Doerr, there is a continuum; it

may prove difficult to draw the line between “production” and “reproduction”, which would tend to lead us to have only one class; but on the other hand, there are situations that can be described as either extremity of that continuum: some situations are frankly cases of production, some others are frankly cases of reproduction, which would advocate a clear distinction between those classes. We can create them, without having to declare them as disjoint: that way, we can account for such situations that could be regarded as instances of both Production Event and Reproduction Event.

Do we regard F41 Publication Expression as a special case of F20 Self Contained Expression? The answer is yes; it implies that F41 Publication Expression also represents a Publisher Work.

Before we examined the Item attributes, we strove to define how we understand respectively the Item notion and the Manifestation-Singleton notion:

- An F5 Item is an E84 Information Carrier that carries an F2 Expression and was produced by an industrial process. Note about E84 Information Carrier in CIDOC CRM: an instance of E84 Information Carrier can be empty (e.g.: an empty diskette, a canvass before a painter paints anything on it), whilst an F5 Item must necessarily carry information; on the other hand, any instance of E24 Physical Man-Made Stuff can carry information without being an instance of Information Carrier (e.g.: a window-pane on which somebody writes a poem and draws a picture with a lipstick; a rock in a prehistoric cave on which a prehistoric man carved a figure).

- F4 Manifestation-Singleton is a subclass of Physical Man-Made Stuff (as such it can carry information) but it is *not* a subclass of Item (as it is not the result of an industrial process and it is by nature unique).

As there are, beyond those ontological differences, a number of similarities between F4 Manifestation-Singleton and F5 Item, we strove to determine, for each attribute defined by FRBR for the Item entity, whether it fitted both F4 and F5 or only F5.

#### *4.5.1. Item Identifier*

This attribute maps to P47 is identified by E42 Object Identifier, inherited from E19 Physical Object via E84 Information Carrier.

That property fits both F4 Manifestation-Singleton and F5 Item.

#### *4.5.2. Fingerprint*

According to Gunilla Jonsson, this attribute should have been defined at an intermediate level between Manifestation and Item, rather than at the Item level, as it identifies a particular *state* of a Manifestation. We did not discuss it further.

#### *4.5.3. Provenance*

This attribute maps to P49 has former or current keeper E39 Actor, P51 has former or current owner E39 Actor.

It fits both F4 Manifestation-Singleton and F5 Item.

#### *4.5.4. Marks/inscriptions*

This attribute maps to P65 shows visual item E37 Mark.

It fits both F4 Manifestation-Singleton and F5 Item.

#### 4.5.5. *Exhibition History*

This attribute maps to P12B was present at E7 Activity P3 has note E62 String.  
It fits both F4 Manifestation-Singleton and F5 Item.

#### 4.5.6. *Condition of the Item*

Such as it is defined in the *FRBR Final Report*, this attribute corresponds to two distinct notions:

- How the item differs from the class features, and
- Result of a E14 Condition Assessment.

On the whole, however, it maps to P44 has condition state E3 Condition State P2 has type E55 Type P3 has note E62 String.

As such, it fits both F4 Manifestation-Singleton and F5 Item (this would not hold true in the first interpretation of the attribute, as an instance of F4 Manifestation-Singleton does not instantiate/exemplify a F3 Manifestation Product Type, and can therefore not “differ from class features”).

#### 4.5.7. *Treatment History*

This attribute maps to P31B was modified by E11 Modification Event P3 has note E62 String.  
It fits both F4 Manifestation-Singleton and F5 Item.

#### 4.5.8. *Scheduled Treatment*

No construct in CIDOC CRM currently makes it possible to account for an event that has not happened yet. We can just model that attribute as an E7 Activity that P3 has a note E62 String attached to it.

→ Martin Doerr thought that it would be interesting to introduce future events in the CIDOC CRM. Stephen Stead had objections against that. Martin Doerr replied that E30 Rights imply certain future activities as possible futures and that this needs to be further developed. Besides, future activities were declared as out of the scope of the CIDOC CRM as long as it was under development, but now that the model is considered to be stabilised, nothing prevents the CRM-SIG from considering modelling future events.

#### 4.5.9. *Access Restrictions*

??? [Nothing in my notes; P104 is subject to E30 Right?]

Before the meeting ended, we had a debate about Web publications, and the notion of “intentional electronic publishing processes”. Making an electronic file available on a physical carrier equvalates to enabling a production process (copies on demand). We should therefore declare a new class, which has most of the properties of F3 Manifestation Product Type: F?? Electronic Publishing (a subclass of F39 Production Plan). Is an Electronic Publication just the naked Expression contained in an electronic file? After a somewhat lengthy debate we came to the conclusion that F?? Electronic Publishing implies a F41 Publication Expression, but *lacks* a F3 Manifestation Product Type.

*Follow-up and plans for the future*

Patrick Le Bœuf is charged to draft a first preparatory draft of draft minutes of the meeting (the present document), which shall be completed with other participants' notes, and to provide a first draft sketch of a draft document that will draft scope notes for the classes we have declared so far.

The next meeting will combine a CRM Workshop and a FRBR/CRM Harmonisation meeting and will, accordingly, last 5 days, on July 4th-July 8th. Venue: either Norway (Oslo or Trondheim) if funding is possible from the DELOS Project, or Crete if DELOS cannot fund that meeting.

## 4th Meeting on FRBR/CRM Harmonization

Heraklion (Crete), ICS-FORTH,  
4-6 July 2005

**Participants:** Trond Aalberg (NTNU (Norges teknisk-naturvitenskapelige universitet), Norway), Martin Doerr (ICS-FORTH, Greece), Dolores Iorizzo (The Imperial College, United Kingdom), Patrick Le Boeuf (National Library of France), Christian Emil Ore (University of Oslo, Norway and chair of ICOM CIDOC), Stephen Stead (Paveprime Ltd, United-Kingdom), Maja Žumer (University of Ljubljana, Slovenia), Siegfried Krause (Germanisches Nationalmuseum, Germany), Guenther Goertz (Institut fuer Informatik 8/KI Universitaet Erlangen-Nuernberg), Carlos Lamsfus (Centre VICOMTECH)

**Observers:** Athina Kritsotaki, Lida Harami, Sophia Bakogianni

### 4 July 2005

**Martin Doerr** emphasised the importance of the attempt of FRBR-CRM meeting: to make a model that combines the notions of FRBR with CIDOC CRM. The document of FRBR is the result of three meetings, containing formal definitions and declaration of properties of classes. **Martin Doerr** posed a question about the purposes of FRBR. First, he summarised the subjects of the discussions during the last two meetings: good notion of identity, alternatives to model, questions to which degree identifiers are used, understanding the domain of the discourse, useful information for describing the identity of a book or a series, etc.

Comparing to the previous meetings, the purpose of this meeting is: to revise the arguments of the previous minutes, to discuss the scope notes and finally to come up with a first draft (which can be distributed to both FRBR and CIDOC members).

**Trond Aalberg** stated that this model is actually this group's interpretation – he thinks that if it is too different from FRBR, probably it will not be accepted by the librarians' community.

**Martin Doerr** referred that he tried to support this work at DELOS meeting – he said that FRBR-CRM was officially accepted from DELOS – the problem is that no information about providing some money for inviting some people, has been available yet.

**Dolores Iorizzo** stated that DELOS theoretically can support FRBR-CRM project. They should formally appeal to them.

**Martin Doerr** said that it is necessary to be clarifying how much funding they have for this project.

**Christian Emil Ore** reminded to the group that this work was presented in CIDOC Annual Conference in Zagreb. Since ICOM-CIDOC is "The International Committee for Documentation of the International Council of Museums", there should be no problem with the museum community – this meeting is actually part of CIDOC policy/plan.

**Patrick Le Boeuf** stated that he had discussed about FRBR/CRM harmonisation in the FRBR workshop in Dublin, Ohio, and there were some positive reactions on that – he will try to spread the idea: one model for librarians and one model for computer science (which is the subject of this discussion).

**Maja Žumer** reported on the contrary that during the same workshop she could notice more negative reactions of librarians to this project - these were reactions of type: "interesting, but why change the model in order to accommodate the museum view?"

**Martin Doerr** answered that this model is an ontological model and that they should try to understand the librarians – for that reason, there should be an introduction to this draft, which clarifies the purpose of this work.

**Trond Aalberg** said that we should simplify a bit what we have been doing so far (such notions as Complex Work, Publication Expression... may not seem necessary) – he proposed that we account first for all the details, and then simplify the resulting picture.

**Patrick Le Boeuf** answered that they should simplify it after a final version.

**Martin Doerr** expressed the opinion that the complete model can still be interesting and useful even after the simplification, for those who want to understand the details.

**Stephen Stead** stated that if we build a simplified model without providing the complete model as well, people might create new constructs in the simplified model without any possibility for them to know

whether those additions are actually extensions to the model or the re-creation of details that were dropped from the complete model.

**Martin Doerr** argued that the distinction between single Work and Complex Work, for instance, is necessary because people strive to discuss properties of both at the same time and, as an inevitable consequence, they disagree. He reminded everyone that a *Complex Work* is distinct from a *Work* and the distinction is a problem of identity. He also referred to the understanding of externalisation event; he said that it cannot be simplified. It describes the process from Work to Manifestation – a process that is otherwise physically impossible. So there is a question of identity: you have several options and it depends on how you perceive things. Properties of Work depend on how you perceive Work.

**Dolores Iorizzo** stated that she would be willing to take part in the writing of an introduction that would insist that the model is necessary for a change paradigm: librarians have to rethink their usefulness to research needs (which includes museum needs). Librarians are struggling to understand their own identity. In the future, libraries will be more research-oriented, with new kinds of readers who want 24 hour access and full-text access to different versions of texts.

**Martin Doerr** stated that their intention is to inform people about this work and that the first priority is to have a text in this document. They should clarify where this project comes from. The process of simplifying is very complex, too complex for us to afford it. Finally, it is a better solution to provide a good introduction (a common formulation of what this project is). Then, he asked who is willing to work on the introduction.

**Trond Aalberg, Dolores Iorizzo, Maja Žumer and Patrick Le Boeuf** will write a small draft of introduction.

All participants agree to go through the scope notes first. Prior to the meeting, Stephen Stead made a graph which summarises all the classes (of FRBR-CRM) and their properties.

About *F1 Work*:

The current definition reads: “A Work is the coherent evolution of a distinct intellectual conception...” (etc.).

**Dolores Iorizzo** said that we should be clear about what we mean by “intellectual conception”.

**Martin Doerr** stated that the conception is the process that leads to a first physical carrier. The Work Conception is the initial idea, not the whole process; in that regard, the scope note that was drafted prior to the meeting for F30 Work Conception is totally wrong and misleading, and has to be corrected. F30 Work Conception is the Event that initialises the whole process, it corresponds to “how the Work comes to existence”. F30 describes the first idea prior to any subsequent process. In the minutes of the second meeting the group referred to oral tradition – but from the point of view of the libraries, there is no physical carrier. The conception is an intellectual process that the physical carrier conveys an idea of.

**Dolores Iorizzo** made the point that not only the scope note but also the example for F30 is misleading.

**Martin Doerr** said that it reflects a confusion between the initial conception/idea and the ongoing process.

**Trond Aalberg** answered that it is a process and that *Work* can be seen as a persistent item or a process. So we can see two aspects: as a process (change of work – then we can't say when it started) and as a persistent item (the initial idea). So the Work Conception is the initial idea.

**Dolores Iorizzo** stated that in case she wanted all Newton's manuscripts, all notes, all these are part of the Work Conception – so the Work Conception comes from the initial idea.

**Martin Doerr** said that the Group should distinguish between the Event that started a *Work* and the idea. F30 scope note doesn't seem to correspond to this.

**Dolores Iorizzo** said that the Work Conception is an Event – some properties may be known.

**Martin Doerr** repeated that what is needed is a scope note that describes the initial idea – it is a question of convention.

**Dolores Iorizzo** stated that *Work* has a genealogic description of how it became a work.

**Martin Doerr** answered that once a Work has a distinct, recognisable identity, it is regarded as a persistent item (there has been a correction on the scope note).

**Dolores Iorizzo** then asked about the birth of the initial idea.

**Martin Doerr** answered that it is what the correction of the scope note says.

**Stephen Stead** proposed to use a standard expression for the beginning of all the scope notes (for example, all the scope notes should start by “represents”).

**Maja Žumer** asked when *Expressions* are not considered as a part of *Work*.

**Martin Doerr** answered that in such cases when the *Work* is nothing more than a mere container, these definitions are problematic.

**Trond Aalberg** said that they probably should say that the Conception of such *Works* is not distinct. F30 *Work* conception is therefore not a subclass of E65 Creation Event (Stephen Stead corrected it).

**Maja Žumer** asked again if it is a subclass of F31 Expression Creation.

**Martin Doerr** answered that it happens in case that we think it is debatable.

**Trond Aalberg** asked when a work is identifiable.

**Martin Doerr** answered that it is uncertain. When an idea started, a work began to exist.

**Stephen Stead** stated that we don't have evidence for this.

**Martin Doerr** expressed the opinion that a work has been created when it came into existence, which means when it is identifiable.

**Dolores Iorizzo** asked how to describe Leibniz and Newton's conceiving the same idea in separate contexts (they had the same idea but the expressions were different).

**Martin Doerr** said that the word "distinct" (in "the coherent evolution of a distinct intellectual conception") is a bad word.

**Dolores Iorizzo** asked again if *work* is an abstract entity.

**Martin Doerr and Steven Stead** agreed that it is not a good term – it has a lot of connotations. However, the most important thing is to define the relationships that are relevant, not to find the best term for that.

**Dolores Iorizzo** stated that there is an overarching conception that brings the components together (including the texts interrelated through the "has translation" property).

**Martin Doerr** answered that in such a construct, the end is envisioned from the very beginning, which is wrong, because only at the end, in biology, a person can see the initial idea.

**Dolores Iorizzo** proposed not to use the word *conception* but the word *concept* (in the scope note for F1 *Work*: "A *Work* is the coherent evolution of an original idea into one or more expressions that are dominated by the *concept*" – instead of "... by the conception").

**Martin Doerr** stated that an *expression* is simultaneously a *self-contained expression*, that is, a *work*.

**Stephen Stead** agreed that it shows simultaneously all the characteristics.

**Dolores Iorizzo** said that F20 Self-Contained Expression is the only concept of a *work*. If it is complex, it can also contain F21 Complex *Work*.

**Martin Doerr** asked what she meant by "only". Maybe "completely" is a better word. The expression "completely embedded" means that the idea is collocated in the text.

**Maja Žumer** stated that this doesn't say what else exists along with the idea, in addition to it.

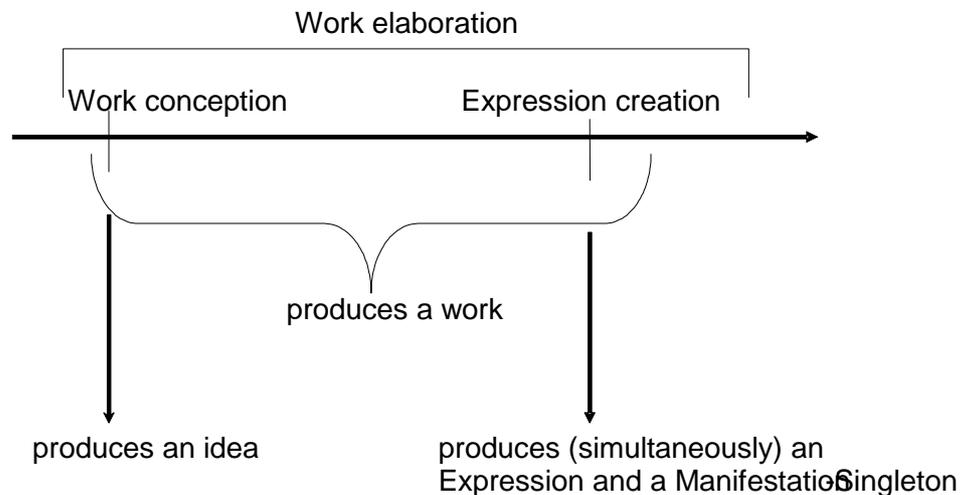
**Martin Doerr** agreed to that.

**Trond Aalberg** thinks that *Self-contained expression* is problematic.

**Christian Emil Ore** made a comment on F1 *Work* scope note: the second paragraph refers to another entity, F20 Self-Contained Expression (it is not a good practice to refer to other entities in the scope notes).

**Martin Doerr** made a comment about the third paragraph: it is about temporal parts of a *work*.

**Patrick Le Boeuf** made the following sketch, in order to sum up what had been said about the distinctions between the initial idea (*Work* Conception), the Expression Creation, and the ongoing process during which the *Work* is being developed:



*Work conception is the initial event*

**Martin Doerr** added that if somebody has written a text and recognises bits of it (determined sequences of characters) within another book, then there is an embedment of *expressions*. He also said that they lack the notion of *work* (the question is about the substance of Expression – it is an equivalent class of identifiable, immaterial items, a sequence of characters). A product is a sequence of characters – so when Maja Žumer says that the embedded Expressions are not part of the Expression of an anthology, she doesn't define the sequence of characters, and there is no need to distinguish *work* from *expression*. The nature of *expression* is the sequence of characters. Ideas, sequences of characters and products are three different things.

**Dolores Iorizzo** asked if F20 Self-Contained Expression is the realisation of a *Work*.

**Stephen Stead** answered that F20 is simultaneously an *expression* and a *work*. The example of “Dante’s Inferno” is a piece of work (trilogy) – F20. The example in the scope note of F20 “a song... fragment” needs to be deleted. The example of “Dante’s Inferno” is better. A phrase in the scope note for F20 “is the only realisation of one individual work” must be reviewed.

**Dolores Iorizzo** asked what a chapter is.

**Stephen Stead** answered that it depends on the context.

**Patrick Le Boeuf** stated that it is F20, since it has boundaries and criteria for its identification as such.

**Martin Doerr** didn't agree; the only criterion is in the creator's intention.

**Stephen Stead** gave three examples of F20: “Neuromances” by William Gibson, “Count Zero Interrupt”, “Mona Lisa Overdrive”.

**Patrick Le Boeuf** made an alternative proposal: to add a new entity “Individual Expression”. A decision on that will be made on the next meeting.

### 5 July 2005

**Trond Aalberg** said that *work* and *expression* are both intellectual things.

**Dolores Iorizzo** proposed to see the gravity of what the Group is doing. Librarians made FRBR (and not philosophers). She emphasised that the Group is not working with the same impulse that librarians work with – the Group is thinking much more creatively than librarians do.

**Martin Doerr** agreed and added that the Group does not work creatively but with principles to define an ontology in order to integrate information. If the Group wants to model the reality that librarians work with and reuse it, then it has to extract the real meaning without inheriting inconsistencies.

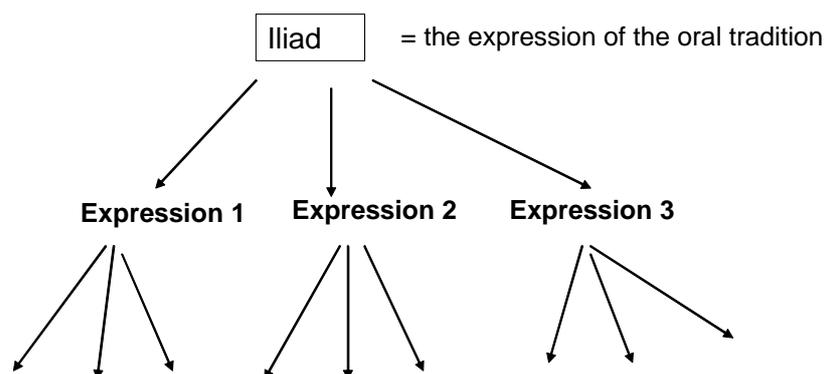
**Trond Aalberg** said that if the Group wants to model Expressions as different entities, it should not use *Work*.

**Martin Doerr** answered that the notion of *Work* here as generally is described, corresponds to two specialisations at the same time – so expressions are not different entities. One is the aspect of distinct, self-contained unit and the other is the one of continuance.

**Trond Aalberg** said that *Work* doesn't always have to be a distinct conception. Sometimes, there is a need to determine if the work considered is an original work or not – it is what librarians do.

**Martin Doerr** answered that with one *Expression* they identify the originality – if they deny this, there is no point to identify the originality. He said that “distinct” is not clear, “original” is not clear, so they have to provide precise definitions.

**Dolores Iorizzo** made the following sketch about Expressions.



**Martin Doerr** stated that, generally, they all share the same understanding. So they need to make a decision: are they modelling the intellectual process or the evidence?

**Dolores Iorizzo** proposed to follow FRBR; she also added that they have to decide what is primary and secondary in the text.

**Martin Doerr** asked about the end of the *Work*.

**Trond Aalberg** answered that since the *Work* is a concept, it doesn't have an end. *Work*, in his opinion, is not specialised; it is just a *Work*.

**Martin Doerr** asked him if *Work* ever stops. It is an ontological question – there are questions about the identity of a *Work* to be answered by FRBR: Does *Work* stop changing? Can it be executed by multiple people at the same time? Can it be executed by multiple people not having been in communication with each other? Can more than one person contribute to the same *Work* without sharing the same information? Does *Work* have part-whole relationships? If so, what are the elements of *Work*? What is the minimum element? Is it the *Work*, the character or something different?

**Trond Aalberg** stated that a part-whole relationship isn't an identity criterion.

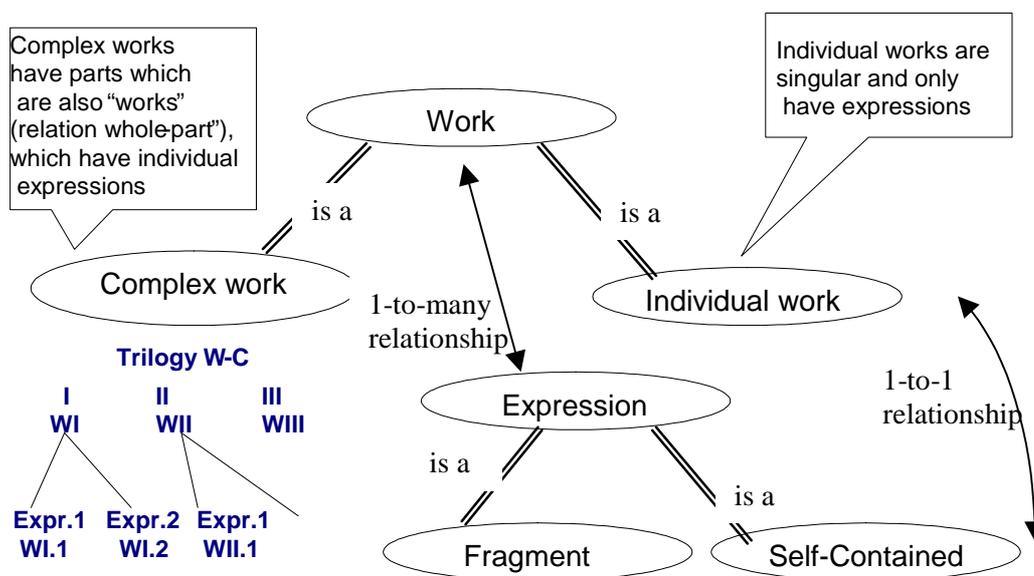
**Martin Doerr** asked Trond Aalberg if he believes that he can understand (the identity of) something, in case he knows its properties.

FRBR implies the notion of *individual* and *complex work*. It refers to both aspects without making it explicit. The idea of FRBR-CRM model is to make the distinction between such notions explicit.

**Dolores Iorizzo** said that in order to answer these questions, they need to read FRBR again.

**Trond Aalberg** said that it isn't easy to make a decision. *Expression* is an instance of *Work*. It is a 1:1 relationship.

**Martin Doerr** answered that he is interested in making a distinction between *Work* and *Individual work*. He made the following sketch:



**What is the identity of Work? Work has 1:N while Individual Work has 1:1 -Contained**

**Trond Aalberg** asked what *Complex Work* is?

**Martin Doerr** answered that examples of *Complex Work* include a trilogy, a translation etc.

**Trond Aalberg** asked again if *Complex Work* has parts.

**Martin Doerr** answered that *Complex Work* has parts – a translation may be a part of another translation.

**Christian Emil Ore** proposed to consider a free text translation as a *Work* (only).

**Martin Doerr** concluded that in that case, he doesn't relate properties of every translation in which librarians are interested.

**Martin Doerr** proposed to make a decision on how to proceed. In fact there are two decisions: 1) should the Group model *Individual Work* as separate from *Self-Contained Expression*? (most people answered positively), 2) Does the Group agree that *Individual Work* as a minimal unit is a *Work* identified by its representative *Expression*? (the Group agreed).

As a consequence, a new class is created: *F46 Individual Work*; it is a subclass of *F1 Work*. A Scope Note for *F46 Individual Work* is drafted as follows: "Individual Work is realised by one and only one Self-Contained Expression, i.e., it represents the concept as expressed by precisely this Expression."

A new property has to be defined as well: R49 created a realisation of:

*F31 Expression Creation: R49 (created a realisation of):F46 Individual Work.*

About the scope note of *F21 Complex Work*: the expression "However...creator" has to be deleted.

**Stephen Stead** asked if it we can speak of an *Expression* when there are multiple people working on the *Work* and externalising to each other.

**Martin Doerr** answered that it is indeed an *Expression*.

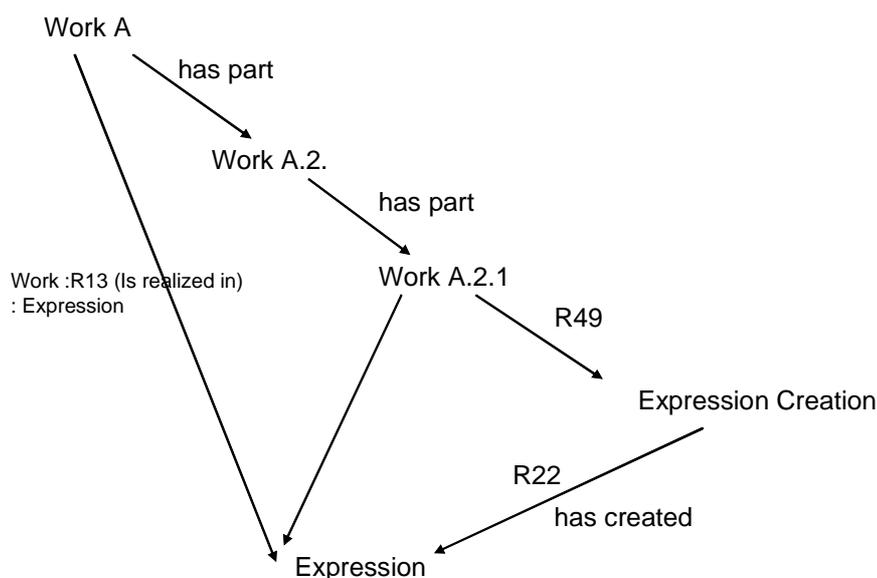
The question is in which sense something comes to existence by this process of *F31 Expression Creation*. Is *Expression Creation* a subclass of *Beginning of Existence*?

**Martin Doerr** asked if the Group considers that an instance of a class can come into existence unless an event comes into existence. The only solution in that case is that a new thing comes into existence as a *Manifestation-Singleton*.

**Stephen Stead** proposed to declare F31 Expression Creation as a subclass of E12 *Production* instead of E11 *Modification*.

**Stephen Stead** also asked how a *Complex Work* is realised in a *Self-Contained Expression*.

**Martin Doerr** answered that this happens through its parts, as is shown on the following diagram:



R13 (*Is realised in /realises*) is a shortcut.

**Patrick Le Boeuf** stated that the Group should understand/consider F22 *Serial Work* as referring specifically to bibliographic *series* rather than to the general idea of “continuance”.

**Martin Doerr** answered that its substance is compatible with *Work – Serial Work*.

**Maja Žumer** proposed “continuing resource” as a more general term.

**Martin Doerr** preferred the term *continuing* instead of *Serial Work*.

**Maja Žumer** added that it is about works that are continuous and not necessarily organised in a *series*.

**Patrick Le Boeuf** said that *Serials* have no *Manifestations*.

**Maja Žumer** said that if F22 is a journal, its parts are the editorial issues which are according to Martin Doerr *Self-Contained Expressions*.

A new property is created: R50 (*plans to use*) linking F43 *Publication Work* to F39 *Production plan*.

About the scope note of F22: the phrases “Works that consist of manifestations”, “Only a Work... nature as a F22 *Serial Work*” probably should be cancelled or reviewed (they are problematic).

**Martin Doerr** stated that the kind of planning is characteristic of *Serial Work* and this should be clear in its scope note.

About the scope note of F23 *Expression Fragment*: the phrase “As a matter of fact... based” is not good and has to be deleted.

## 6 July 2005

**Martin Doerr** said that on that day their intention should be to finalise the scope notes of the classes that correspond to basic FRBR.

**Trond Aalberg** proposed to look at *Manifestation*, *Item*, and *Manifestation-Singleton*.

**Martin Doerr** said that there is no time to look at the properties.

**Trond Aalberg** insisted to look at different properties (in his opinion, if they want to distribute a draft, they should go on a clean up).

**Martin Doerr** asked everyone if they agree with that opinion and look for properties, inheritance, candidates for classes that are unnecessary.

The process of assigning an *identifier* to *Work* is different from assigning an *identifier* to *Manifestation*.

**Trond Aalberg** repeated that he finds it difficult to discuss such matters through e-mail only.

**Martin Doerr** answered that for the sake of economy, a decision will be made during a meeting only if no agreement was found through e-mail. He emphasised that the Group should be more realistic and that the next meeting should be well prepared in advance. All the alternatives should be sent by e-mail so that a decision can be made during the next meeting.

**Stephen Stead** proposed to look at the scope notes and the properties.

**Martin Doerr** said that the substance of *Work* is a set of ideas, while the substance of *Expression* is a set of symbols or signs.

**Maja Žumer** added that F41 Publication Expression is not only the publishing of a book, but it is also the idea of putting all together.

F43 Publication Work is a F21 *Complex Work* because it contains issues, pertaining to the physical appearance (properties) of the item; Complexity is not in the structure of the Work (so F43 has a scope note now).

*About F22 Serial Work:*

**Maja Žumer** made the point that for F22 there is a confusion/mixture between manifestations and expressions.

**Martin Doerr** explained that they mean that it is a part of the plan.

**Maja Žumer** asked what the *Expression* of an instance of F22 Serial Work is.

**Martin Doerr** answered that it is *the F41 Publication Expression* for each issue. He stated that what Maja intended probably is a new class: *Container Work*, which combines different expressions (but this is something that is not compatible to FRBR). Martin Doerr doesn't agree with that, because nobody can define what the precise boundaries of a Container Work would be, nor decide which Work is a Container Work and which is not. If somebody uses *Publication work* instead of *Container*, then it defines well the properties of FRBR.

**Martin Doerr** asked **Maja** to write a proposal about introducing *Container Work* as a new class and to write a scope note for it. This will be discussed on the next meeting. The group has to agree on solutions and rules about this unique model.

Another subject is about the duration of the F31 *Expression creation*. Can a lot of people contribute to a *work*?

**Martin Doerr** referred to the following example: multiple people can contribute to a Work, and even to an Individual Work, but taking out a fragment of some Work and completing it without communication between the authors sets a limit to what we would regard as an Expression of the Work. There is a relationship of contextual coherence.

**Martin Doerr** proposed to model this example on next meetings.

In his opinion, if an instance of F2 *Expression* is of specific form such as text, image, video etc., it should be simultaneously instantiated in the classes representing these forms. Thereby one can make use of more specific properties of these classes, such as language, which is applicable to linguistic objects only.

About the scope note of F2 *Expression*: the phrase "On the other side this means... cover art – see F41 Publication Expression" has to be deleted.

He also proposed to look at which classes are disjoint (for example, are *Fragment Expression* and *Self-Contained Expression* disjoint?) and discuss it on the next meeting.

*F41 Publication Expression: P106 (Is composed of): E33 Linguistic Object*: this property is not necessary; it should be expressed as a comment, for example: "Things as title and other elements recorded in cataloguing practice can be part of a publication expression, e.g. the content of the title proper".

**Martin Doerr** asked if there is a need to delete *P106 is composed of (E35 Title)* from *F41 Publication Expression*.

**Trond Aalberg** answered that a title is neither an *Expression* nor a *Work*.

**Martin Doerr** said that it isn't a *Work*; it is a section/fragment.

**Martin Doerr's** comment was that the Group should use classes to convince the FRBR community that FRBR classes and properties are too specialised. This proves that FRBR uses improper details.

**Maja Žumer** asked if the resulting model should reflect reality or the practice of old catalogues.

**Martin Doerr** answered that the intention is to model reality, which is the basis for library practice.

About F31 *Expression creation*: a sentence was added: "The expression creation... any other work", but it has to be reviewed and related in a way to *Work*.

About the scope note for F33 Uniform Title Assignment: phrases such as "a set of expressions", "an expression", "a set of works" are not considered appropriate and have to be changed or cancelled.

About the scope note of F39 *Production Plan*: a sentence has been added: "The creation of an instance of F3 Manifestation – Product Type usually relies on a pre-existing instance of F4 Manifestation – Singleton (e.g., the typescript or the electronic file provided by an author to the publisher) (see F39 Production Plan)".

F42 *Edition Series* is deleted – it is an unnecessary class.

**Martin Doerr** stated that they need an introduction about the aims and the strategy of this model.

**Maja Žumer, Dolores Iorizzo and Christian Emil Ore (or Patrick Le Boeuf)** were willing to write it. He also said that they have to make a cleaning – to trace inheritance of links, to identify the properties and relationships, to set up the IsA relationships between properties.

**Patrick Le Boeuf** will draft further scope notes and **Maja Žumer** with **Dolores Iorizzo** will add examples.

**Christian Emil Ore** will make graphs for all the classes and their properties.

**Martin Doerr** will try to make these in SIS Telos. A draft will be distributed. This draft should have a version identifier and should include all the CRM classes (numbered). On the next meeting (probably 16-18 November in Nuremberg) the Group should have the complete model. The text should be completed until September, so that an agenda can be prepared for the meeting (including alternatives, comments etc.) in two months.

**Martin Doerr** couldn't attend the meeting (to the end) – so, he had to leave.

**Trond Aalberg** asked what CLP properties are and if they have the same meaning as the other properties.

**Stephen Stead** answered that CLP are class properties and they don't have the same meaning as the other properties. They have to do with the notion of "MetaCRM" developed by Martin Doerr.

**Dolores Iorizzo** said that if they can't go through all the properties, then it will be difficult to distribute a final draft.

**Stephen Stead** answered that they all agreed to provide a text which shows what they managed to write up to now, with more scope notes and details.

About F3 *Manifestation-Product Type*:

There was a long discussion about this class:

First, **Stephen Stead** read the scope note.

**Maja Žumer** concluded that a *Manifestation* has only one *Expression*. (so, the phrase "more than one", in the sentence "The features that characterise a given instance of F3 Manifestation – Product Type include: one or more than one instance of F2 Expression...", is not needed).

**Dolores Iorizzo** didn't like the scope note of F3 and generally if it was up to her, she would delete this class (in her opinion it is problematic and the scope note doesn't express this meaning from the very beginning). She asked if F3 has necessary types of features and if so, what they are.

**Stephen Stead** answered that it is an "open" class and for that reason it doesn't have necessary features.

The text of the scope note is reviewed.

The phrases "should be regarded as", "or more than one" and "The case of distinct *states* for hand-press materials, such as ... in differences in content as well" should be deleted because they are misleading. In fact, **Stephen Stead** proposed that the topic addressed in last paragraph, mentioning Gunilla Jonsson's article about hand-press materials, should be addressed in another document, such as a use case diagram.

About F4 Manifestation – Singleton:

The second paragraph in the scope note of F4: "Whereas F3 Manifestation – Product Type is a subclass of E55 Type and therefore... to be accounted for" should be part of the introduction to be written, because it refers to elementary/fundamental classes.

F5 is named *Item* not *Items*.

**Trond Aalberg** stated that *Item* doesn't have discrete boundaries when compared to a *Manifestation-Singleton* (in case that *Manifestation-Singleton* is the only one to be preserved).

**Stephen Stead** said that if a person has an exemplar and doesn't know anything about its context, the exemplar can be modelled indifferently as F4 Manifestation – Singleton or F5 Item.

Finally, **Stephen Stead** deleted the properties "*P102 has title: E35 Title*", "*P2 has type: E55 Type*", "*P3 has note: E62 String*" of F3 Manifestation – Product Type.

#### List of Actions (4th Meeting on FRBR/CRM Harmonization)

1	Maja Žumer Dolores Iorizzo Christian Emil Ore Patrick Le Boeuf	Make an introduction about the aims and the strategy of FRBR-CRM model. Trace inheritance of links, identify properties and relationships, set up the IsA relationship between properties
2	Patrick Le Boeuf	Write scope notes.
3	Maja Žumer Dolores Iorizzo	Find examples.
4	Christian Emil Ore	Make graphs for all the classes and their properties
5	Martin Doerr	Represent the FRBR-CRM model in SIS Telos
6.	all	Add comments, alternatives, propose scope notes etc. until November 1st so that an agenda can be drafted in time for the next meeting.
7.	all	Next meeting on 16-18 November in Nuremberg.

## 5th Meeting on FRBR/CRM Harmonization

Nuremberg (Germany), Germanisches Nationalmuseum,  
14-18 November 2005

Participants (on all three days or just for part of the meeting): Trond Aalberg (NTNU – Norges teknisk-naturvitenskapelige universitet, Norway); Chrysoula Bekiari (FORTH, Greece); Martin Doerr (FORTH, Greece); Günther Görz (Erlangen University, Germany); Dolores Iorizzo (The Imperial College, United-Kingdom); Siegfried Krause (Germanisches Nationalmuseum, Germany); Carlos Lamsfus (Vicom Tech, Spain); Patrick Le Bœuf (National Library of France); N... (Slovenian student); N... (Cologne University, Germany); N... (Sweden); Stephen Stead (PavePrime Ltd, United-Kingdom); Maja Žumer (Ljubljana University, Slovenia).

Excused: Christian Emil Ore (Oslo University, Norway; and chair of the CIDOC).

16/11/2005

The object-oriented definition of FRBR will have to be accompanied by an introduction, on which we haven't begun to work yet. Dolores Iorizzo makes the point that this introduction will have to put this endeavor in a broader context (information integration, "semantic strategies" ...).

Martin Doerr replies that our current priority is to produce something coherent, to ensure that people outside the working group understand what we are doing. We have to make a consolidated summary of the minutes of the previous meetings, because we discussed what this model should be. What are the functions we would like it to perform? This is the question we should address in that introduction.

Martin Doerr suggests then that we begin directly with the Scope Notes.

Trond Aalberg would prefer that we first see what is missing (in particular, the relationships, which we have not addressed so far). Besides, he thinks that we have declared too many classes. Then he comments on the document he sent prior to the meeting (a mapping between the attributes and relationships defined in FRBR<sub>ER</sub> and the classes and properties defined in FRBR<sub>OO</sub>).

Martin Doerr thinks that we have to address two issues before we examine the Scope Notes: a) we have to discuss if an Appellation is structured, and b) attributes of serials should be revisited.

Maja Žumer reminds us that the introduction to the *FRBR Final Report* states explicitly that the modelling endeavour is not finished yet and that serials and digital formats call for further analysis.

Martin Doerr evokes the discussion we had in London about the notion of Electronic Publishing; we need a text that would sum up that discussion so that we can check if the Scope Notes are consistent with our common understanding of that notion. Other topics that should be formalised include: the notion of the "first externalisation" of an Expression, and the difference between physical publishing and electronic publishing. Those two topics will have to be addressed in the Introduction. Besides, Martin makes the point that one issue addressed in FRBR<sub>OO</sub> is also relevant for the CIDOC CRM: can Creation (of a conceptual object) be without a physical product?

Maja Žumer says that before we go into the Scope Notes, we need to clarify Publication Expression and Self-Containing Expression and Identifiers. She does not think that a uniform title is an Identifier.

Martin Doerr shows the slides sent by Christian Emil Øre, and that will require further investigation.

Then the Scope Notes are examined in their sequential order (at the end of the meeting, all classes will have been examined; properties still remain to be examined). All details of the changes made in the text of Scope Notes are not transcribed here; the present minutes only reflect discussions raised by the examination of certain Scope Notes.

Maja Žumer asks that a property *is realised by* be created between Work and Expression.

Martin Doerr replies that this property is already expressed through the property concatenation Complex Work *has member* Individual Work *is realised in* Self-Contained Expression. However, a short cut could be declared for that developed path. Property *R13 is realised in* is currently declared between F1 Work and F20 Self-Contained Expression; should it have F46 Individual Work as its domain? The question remains unsolved until the next meeting.

Besides, Martin Doerr wonders what the connections are between Expression and Manifestation.

The second paragraph of the Scope Notes for F4 Manifestation – Singleton should be removed and included in the Introduction.

A general shortcut is considered for F4 Manifestation – Singleton *R47 is linked to F31 Expression Creation R22 created F2 Expression*. That property would be a sub-property of *R7 has representative manifestation-singleton (is representative manifestation-singleton for)*.

17/11/2005

Martin Doerr insists that F20 Self-Contained Expression renders the idea of a “snapshot” of the Work; it is valid at a point in time, a representative or logically consistent state of the Work. A Complex Work may correspond to a Self-Contained Expression.

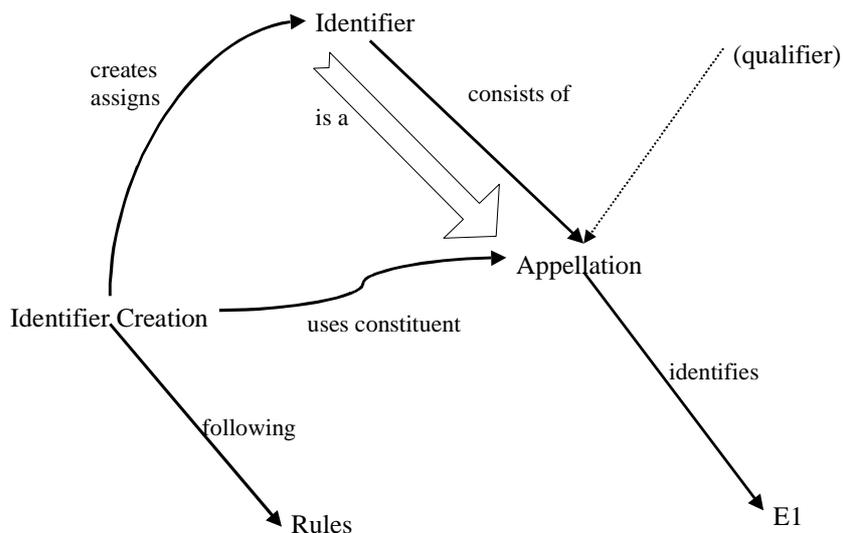
Can a Work be actually unfinished? So far, we took it for granted that an unfinished Work could be realised only through a F23 Expression Fragment; from now on, we build on the working hypothesis that expressions of unfinished works can be regarded as equivalent to Self-Contained Expressions. F20 Self-Contained Expression covers two distinct things:

- the logical consistency of the Work at this point of time (*stages* of the Work);
- the completeness of this part of the Work (the complete expression of an unfinished work).

Stephen Stead declares that F2 Expression is not necessarily a snapshot of a work, while F20 Self-Contained Expression is.

Self-Contained Expressions can contain Self-Contained Expressions. A Fragment is a part of a Self-Contained Expression and is not a Self-Contained Expression.

We dwell somewhat longer on the issue of the relations between Appellation, Identifier, and Access Point. Eventually, we suppressed the class Access Point. The class Identifier comprises both numeric identifiers and access points created by cataloguers (uniform title, personal name heading, etc.). A qualifier is always the appellation for something (a personal name, a date, a type...). An Identifier is therefore created by combining various Appellations. An Identifier Creation requires more than one Appellation in order to result in an Identifier. We declare therefore that Identifier is a sub-class of Appellation, which enables, too, combining identifiers in order to create new identifiers (e.g., author/title headings). This process is summarised in the following figure:



We declare therefore a new property: F14 Identifier *R51 consists of E41 Appellation*.

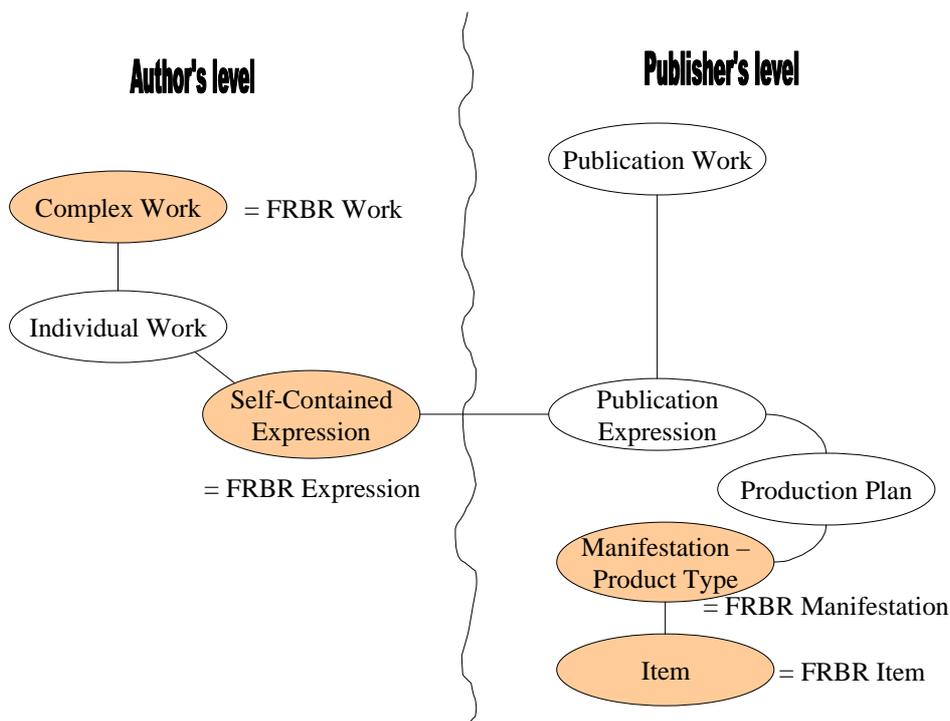
An Identifier is created in the course of an identifier assignment, but we make the decision to drop the distinction between Identifier Creation and Identifier Assignment.

As to Identifier Assignment: should we create one specific Identifier Assignment for each specific kind of Identifier (Work Identifier Assignment, Expression Identifier Assignment, etc.), or just one generic Identifier Assignment? After some discussion, we eventually decide to keep only a generic Identifier Assignment.

18/11/2005

F41 Publication Expression: we need at least one additional example (for a sound recording).

At a moment during the discussion, Martin Doerr maps the 4 Group 1 entities to the classes declared in FRBR<sub>OO</sub>:

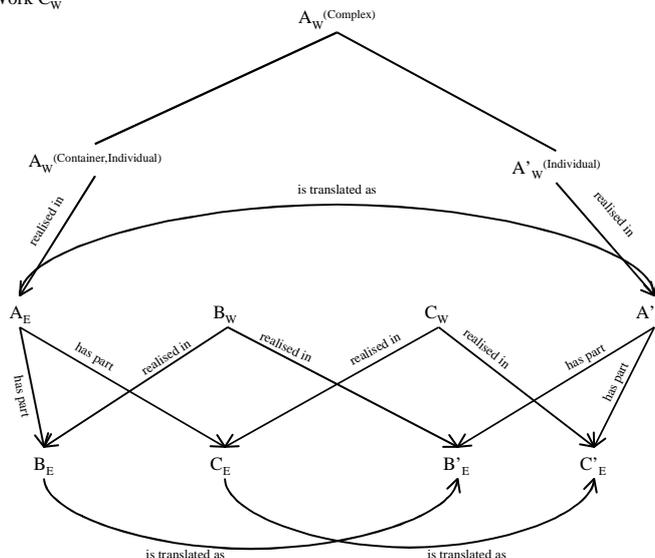


FRBR<sub>ER</sub> defines just 4 entities outside of their context; FRBR<sub>OO</sub> puts those entities back into their ontological context.

Maja Žumer introduces the notion of Container Work (aggregates). Is a Container Work an Individual Work, or a Complex Work? Can it be part of a Complex Work? Martin Doerr concludes that a Container Work is an Individual Work which can be part of a Complex Work, which can be summarised in the following figure:

Container Work  $A_W^{(Container, Individual)}$  =  
 “I pull together text  $B_E$  of Work  $B_W$   
 and text  $C_E$  of Work  $C_W$ ”

$A_W^{(Complex)} = A_W^{(Container, Individual)} + A'_W^{(Individual)} + \dots$



Martin Doerr warns us against the error that consists in confusing “having parts of kind so-and-so” with “being of kind so-and-so” (having wheels does not make a wheel out of car). A Container Work that has a trilogy as a part does not make a Complex Work out of the Container Work.

F43 Publication Work: we need further examples (simpler, more “serious”) that include illustrations, minor additions made by the publisher, etc.

In the end, we have proposed to drop 8 classes (F8 Agency, F15 Access Point, F26 Uniform Title Qualifier, F27 Expression Identifier Qualifier, F32 Qualifier Creation, F34 Expression Identifier Assignment, F35 Expression Identifier Qualifier Assignment, F38 Representative Manifestation-Singleton Assignment (merged with F36 Representative Product Type Manifestation Assignment into F36 Representative Manifestation Assignment)), and 2 properties (R18 performed, R20 performed) (other properties will certainly have to be dropped as well, due to the suppression of certain classes), and we have declared 2 new classes (F47 Manifestation Product Type Identifier, and F48 Container Work), and 5 new properties (F14 Identifier *R51 consists of* E41 Appellation, F33 Identifier Assignment *R52 used rule* F16 Rules, F36 Representative Manifestation Assignment *R53 assigned* F4 Manifestation – Singleton, F48 Container Work *R54 used expression* F2 Expression, F45 Publishing *R55 created production plan* F39 Production Plan).

Besides, we have renamed 3 classes (“F33 Uniform Title Assignment” is renamed: F33 Identifier Assignment; “F36 Representative Product Type Manifestation Assignment” is renamed: F36 Representative Manifestation Assignment; “F45 Electronic Publishing” is renamed: F45 Publishing Event), and 4 properties (“R22 has created (was created by)” is renamed: R22 created (was created by); “R23 has created (was created by)” is renamed: R23 created (was created by); “R26 used qualifier (was used in)” is renamed: R26 used constituent (was used in); “R45 has created (was created by)” is renamed: R45 created (was created by)).

Three properties change their range:

- the range of *R24 assigned to* is no longer F1 Work, but E1 CRM entity;
- the range of *R25 assigned* is no longer F24 Work Identifier, but F14 Identifier;
- the range of *R26 used constituent* is no longer F26 Uniform Title Qualifier, but E41 Appellation.

The next meetings are scheduled at the following dates:

- 27-29 March 2006 in London (followed by a workshop on March 30th, organised by Dolores Iorizzo; that workshop, aiming at making our work more widely known, will be open to anyone interested within the “FRBR community,” but targeted invitations will be sent as well;

- 26-29 June 2006 in Trondheim (organiser: Trond Aalberg);
- 25-27 October 2006 in Heraklion (preceded on October 23-24 by a CRM-SIG meeting; organiser: Martin Doerr).

Maja Žumer, Dolores Iorizzo and Patrick Le Bœuf are in charge of preparing a preliminary draft of the Introduction in December.

## 6th Meeting on FRBR/CRM Harmonization

London (United-Kingdom), Imperial College,  
27-29 March 2006

**Participants:** Trond Aalberg (BIBSYS, Norway), Martin Doerr (ICS-FORTH, Greece), Dolores Iorizzo (The Imperial College, United Kingdom), Patrick Le Boeuf (National Library of France), Stephen Stead (Paveprime Ltd, United-Kingdom), Maja Žumer (National and University Library of Slovenia), Christian Emil Ore (university of Oslo, Norway), Kristóf Csillag (MTA – SZTAKI, Hungary), Carlos Lamsfus (Centre VICOMTECH, Spain), Allen Renear (GSLIS/ UIUC, Illinois, USA), Panos Constantopoulos (AUEB & ICS-FORTH, Greece)

**Observers:** Chryssoula Bekiari (ICS-FORTH, Greece)

### MEETING #6 STEP BY STEP

*27 March*

#### Discussion notes

1. The meeting starts with Martin's Presentation (slides 9 - 15 from DELOS NoE)(attached to these minutes). A few worth noticing comments follow:
  - a. The work has identity but the individual work doesn't have.
  - b. Work can contain another work. Martin gave the example of a collection of poems and poems
  - c. Intuitively, we have a notion of continuity of work which is difficult to grasp
  - d. About the methodology we follow: we try to reengineer close to reality
  - e. It is suggested by Allen the review of the book "Dialog mapping???"
2. We discussed Maja's comments to specific classes. The changes that made after this discussion are included in Maja's document attached to these minutes. A few worth noticing comments follow:
3. **F2 Expression:**
  - a. About the specific forms of the instances of F2 Expression: (i) There are specific properties for specific forms (ii) The question was should we make a list of all such specific properties? Finally we conclude that we should make a paragraph in the introduction about multiple instantiations and we should make a comment on this point. This point was last paragraph of F2 scope note.
  - b. About the properties: (i) R28, we don't have Expression Identifier Assignment, (ii) we have inconsistencies with Representation Manifestation Assignment (iii) to clarify the properties R34, R35
4. **F4 Manifestation – Singleton**
  - a. P106B is a repetition of Produced by in the CRM, P45 is a sub property of P108. (i) We have to check how these two properties (P106B, P108) came from? (ii) We have to check the name and the super class of R45.
  - b. The first externalization could be oral or written, but for the FRBR purposes we should model only the written ones

- c. We have a span between the conception and the witnessed.
- d. There was a discussion if the Expression Creation should become a subclass of Modification instead of E12 Production. We left this to discuss in CRM
- e. A conclusion was that two immaterial items have the potential to be indistinguishable through their contents
- f. Another conclusion was that from the content you can conclude the identity
- g. An issue here was that we may have two equivalent expressions to similar ideas, these expressions by chance would be the same
- h. A discussion took place here about the content of the immaterial item and the content of an expression and references made to the example of the work of the prisoner.
- i. In this point we left for a discussion later the issue that: The precise form of what makes up an expression varies between optical images, words, characters on the purpose associated by the use we want to make about this expression.
- j. An argument made here that two different expressions that comes from uncorrelated work might have been made by chance of the same arrangement of signs. After that we decide to be in the introduction a paragraph about notions of identity and equivalent.
- k. Patrick made an argument in slide 13, that an expression creation produces a manifestation singleton and according to this model we cannot create a manifestation singleton without create an expression creation. Finally we argued that this is a problem of CRM and not of FRBR. A manifestation singleton will be a new object or an existed one and we have to check with CRM how a feature in general will come into existence. We came to the conclusion that a manifestation comes into existence but it is not necessarily create an independed object of its own, an example of this is the prisoner's wall.

**5. F7 Corporate Body:**

- a. Sometimes may be place for example the city of community????

**6. F14 Identifier:**

- a. Identifier can be an authorized form or a variant form

**7. F16 Rules:**

- a. It became "Identifier Rules"
- b. The examples should be adjusted and the intention is to generalize this class later.

**8. F20 Self-Contained Expression:**

- a. We made a note here that we should mentioned the unfinished expression in the scope note of expression and expression fragment
- b. The examples are not appropriate. We need some straight forward examples.

**9. F22 Serial Work:**

- a. Martin will review the scope note

**10. F24 Work Identifier:**

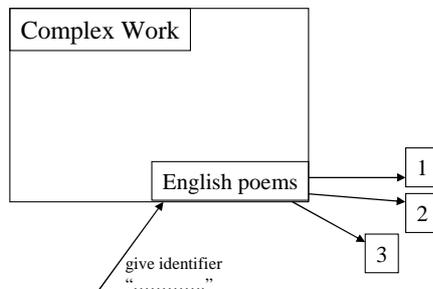
- a. Has to go out and transfer the examples.

#### 11. F31 Expression Creation:

- a. We have to add a phrase about formal tradition

#### 12. F33 Identifier Assignment:

- a. Steve made the figure 1



*Figure 1*

- b. We don't assign a uniform title to a set but to complex work
- c. The examples here are examples of work identifier. We usually produce an expression identifier by adding for example "English" for translations
- d. We have to bring other examples

#### 13. F43: Publication Work

- a. Work of publisher includes a publication plan

#### 14. F44: Reproduction Event

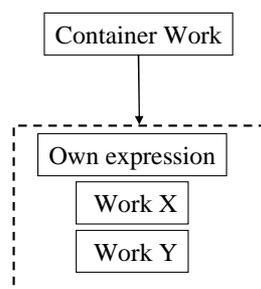
- a. We noted here that the whole thing is to preserve the expression
- b. "Copy event" is a specific case of production

#### 15. F45 Publishing Event:

- a. It activates simultaneously an expression creation

#### 16. F48 Container Work:

- a. The container work is the glue but we have nothing more to say about the glue
- b. Container work may never be complex
- c. In the following *Figure 2* "Work X" has an identifier, "Work Y" has an identifier, while "own expression" has parts



*Figure 2*

- d. We need an example

17. At this point we finished with Maja's text and we continued with reviewing all the properties.

**18. R2 has representative expression (is representative expression for)**

- a. The problem here was that there are examples that a work has more than one representative expressions.
- b. Representative expression of a work means that any publication of this expression guarantees no loss of that work.
- c. It has been left for another discussion if one work has one or more representative expressions.
- d. A question here was “how we know the title of the work”. We made changes for this to the scope notes.

*28 March*

**Discussion notes****19. R3 has representative manifestation product type (is representative manifestation product type for) :**

- a. We argue here that we have to check all the properties that have the same name.
- b. We left to discuss later if a given expression has more than one representative manifestation Product type.

**20. R7 has representative manifestation-singleton (is representative manifestation-singleton for)**

- a. We left to discuss later if a given expression can have more than one representative Manifestation Singletons
- b. More relevant examples are needed for R7

**21. R8 is identified by (identifies):**

- a. A question was: do we need this? Does it say anything else than P1 says?
- b. Another argument here was that, there are appeared to be sets of expressions in current practice, we should elaborate the nature of those sets and we have to clarify the unity criteria for them.

**22. R9 comprises carriers of (carriers provided by)**

- a. We noted that this is a cross categorical property.

**23. R10 belongs to type (is type of)**

- a. We left to discuss later for carriers
- b. We argue that the Manifestation Product Type is subclass of Type
- c. We need to check all the shortcuts.

**24. R11 is composed of (forms part of)**

- a. We accepted that (i) fragments can contain fragments (ii) self contained expressions can contain self contained expressions (iii) a fragment is in depended from its source
- b. We have to revise the examples

**25. R12 has member (is member of)**

- a. We need an explicit example or to add explanation to the examples

**26. R13 is realised in (realises)**

- a. We agreed here that “a self contained expression is always a realization of individual work”

**27. R14 is identified by (identifies)**

- a. Should be replaced by P1?

**28. R16 carried out by (performed)**

- a. We left to discuss later how to make comments on the text?
- b. It is a need to normalize the reverse code of reverse link

**29. R26 used constituent (was used in)**

- a. We left to discuss later the relationship between the constituents with the rules

**30. R26 used constituent (was used in)**

- a. We left to discuss later the relationship between the constituents with the rules

**31. R52 used rule (was the rule used in)**

- a. We have to discuss about the argument “if the rules are needed”

**32. R55 created production plan (was created by)**

- a. To discuss if we can rid of the production plan. The idea is to correlate the publishing event with carrier production event.

**33. R55 created production plan (was created by)**

- a. To discuss if we can rid of the production plan. The idea is to correlate the publishing event with carrier production event.

*29 March*

**Discussion notes**

**34. CLP2 should have type (should be type of)**

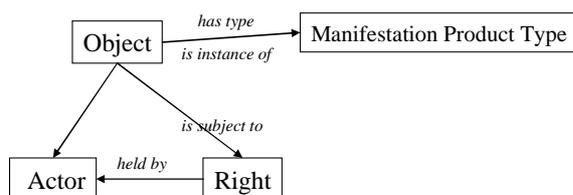
- a. A question here posed by Patrick was “how we can express the fact that a stereo is a kind of sound” and the answer was that we should make it explicit??

**35. CLR5 should carry (should be carried by)**

- a. It is regarded as good to have a shortcut that points directly from expression to manifestation. We should check that we have a direct link that point from work to expression consistent with our interpretation of FRBR
- b. It is proposed by Allen to study the guidelines of the definition from point DEONTIC logic

**36. CLP104 is subject to (applies to)**

- a. We discuss enough time of why this is should be class attribute. Martin drew the following figure 3.



**Figure 3**

- b. Allen promised that he will try to finger out a better name for this property
  - c. In general we need a better formulation of CL attributes such that the meanings become clear when they apply to the instances of a domain. We all agreed that it is a linguistic question and their existence is logically consistent.
37. We continued with checking the quantifiers. Emphasis is given to the following comments
- a. R1: We mess two concepts, we need to clarify is it such a thing or is it useful?
  - b. R2: to set up an issue list in which everyone may express his opinion
  - c. R8: an identifier should be unique but a question is “ is really unique?”
  - d. R13: (i) We should formulate the constraint that we regard hierarchies of complex work to have only one root (ii) We try to avoid that one work will be part of two different works
  - e. (i) it is an interesting question the cardinality of class attributes. (ii) in which sense electronic publishing contains manifestation product type? (iii) we have to answer “how the necessary conditions for items affect the cardinality in the light of electronic publishing?”
38. We continued with the discussion about the introduction. The comments here are:
- a. Maja will update the expression definition to introduction
  - b. Martin will write something about (i) equivalents, (ii) oral tradition (iii) electronic publishing
  - c. It may be needed to address what we model. An argument was that we try to reengineer the conceptions behind FRBR in order to detect the reality behind it.
  - d. We intend in the near future to make clear that the model we developed is independent from current practice

*Summarized task list*

1	Patrick Le Boeuf Maja Žumer	<ol style="list-style-type: none"> <li>1. To send the new version to the chair of FRBR Review Group. The chair will decide when it will be published</li> <li>2. to announce in FRBR discussion list, not before IFLA meeting</li> <li>3. will give a coherent example: a large use case of FRBR</li> </ol>
2	Maja Žumer	<ol style="list-style-type: none"> <li>1. Will a give an example of a F48 Container Work (16d)</li> <li>2. will update the expression definition to introduction(38a)</li> </ol>
3	Patrick Le Boeuf	<ol style="list-style-type: none"> <li>1. Should give examples to those properties that they have not</li> </ol>

		2. Will make the annotation document
4	Chryssoula Bekiari	Write the minutes
5	Stephen Stead	update the Visio diagrams
6	Trond Aalberg	will update the mapping table in two months from now and make the graphic representation
7	Martin Doerr	<ol style="list-style-type: none"> <li>1. clean the document and send to the others for review, in two weeks</li> <li>2. To create a working group for the FRBR in the CIDOC wiki</li> <li>3. The new version will be a deliverable to Delos NoE</li> <li>4. make a paragraph in the introduction about multiple instantiations (3a)</li> <li>5. to check how the properties(P106B, P108) in F4 came from and to check R45 too (4a)</li> <li>6. to be in the introduction a paragraph about notions of identity and equivalent.(4i,j)</li> <li>7. rewrite about F22 Serial work (9a)</li> <li>8. to set up a an issue list to wiki forum(37b)</li> </ol>
8.	All	<ol style="list-style-type: none"> <li>1. We will keep internally the unclean version</li> <li>2. We send around our comments and opinions and we will discuss and vote over email</li> <li>3. We need some straight forward examples for F20 (8b)</li> <li>4. We have to add a phrase about formal tradition to the scope notes of F31 (11a)</li> <li>5. We have to bring other examples for F33 (12d)</li> <li>6. We have to go back and check all the “Representative &lt;Something&gt;” classes(from the discussion at F36)</li> <li>7. To be discuss if a work has one or more representative expressions.(18c)</li> <li>8. we have to check all the properties that have the same name (19a)</li> <li>9. to discuss if a given expression has more than one representative manifestation Product type (19b)</li> <li>10. to discuss if a given expression can have more than one representative Manifestation Singletons(20a)</li> <li>11. More relevant examples are needed for R7(20b)</li> <li>12. There are appeared to be sets of expressions in current practice, we should elaborate the nature of those sets and we have to clarify the unity criteria for them (21b)</li> </ol>

		<p><b>13.</b> We left to discuss later for carriers(23a)</p> <p><b>14.</b> We need to check all the shortcuts (23c)</p> <p>15. We have to revise the examples of R11(24b)</p> <p>16. We need an explicit example or to add explanation to the examples of R12 (25a)</p> <p>17. We left to discuss later how to make comments on the text? (28a)</p> <p>18. It is a need to normalize the reverse code of reverse link(28b)</p> <p><b>19.</b> We left to discuss later the relationship between the constituents with the rules(29a)</p> <p><b>20.</b> We have to check if the deleted examples are useful to somewhere else</p> <p><b>21.</b> We have to discuss about the argument “if the rules are needed”(31a)</p> <p><b>22.</b> To discuss if we can rid of the production plan (32a)</p> <p>23. we have to answer “how the necessary conditions for items affect the cardinality in the light of electronic publishing?” (37e(iii))</p>
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*Follow-up and plans for the future*

1. agenda for Trondheim meeting: We need 4 days dealing with relationships and missing attributes and revise the attributes. We should close FRBR in two days and then we will start with FRAR and the Performing Arts discussion
2. agenda for Heraklion meeting: We discuss FRBR and multimedia together, we have to look for mpeg7 experts.

## 7th Meeting on FRBR/CRM Harmonization

Trondheim, NTNU, Realfagsbygget, Gløshaugen campus,  
26-29 June 2006

Participants: Trond Aalberg, Chryssoula Bekiari, Martin Doerr, Patrick Le Bœuf, Christian-Emil Ore, Maja Žumer.

1)

What is the difference of Appellation and Identifier?

Identifier: Is constructed, as such different to Appellations which are not Identifiers.

Meant to be unique, but there is not one per object in general. Not necessarily unique in reality. Includes alphanumeric ids and compounds of meaningful names.

2)

Drop F47: no properties, not necessarily characteristic in form for a F3 M.P.T.

3)

Do we need represent. Assignment (F36/37)?

Yes, probably in a better form:

Patrick rewrites scope note F36, F37, to make more clear the implicit nature of this process, and to make clear it is not necessary. The name may be misleading: It is a process of assigning a prototype for an expression/work. May be a combination of multiple, complementary objects is actually chosen as the best representative. "representative" is meant here with respect to evidence for the existence of the particular expression rather than the total of features.

A manifestation may be repr. for more than one expression.

4) SIS version: R52 missing

5) Delete R8, R14, completely covered by P1.

6) Action: Martin to select all CRM concepts needed for FRBR-FRBRoo mapping.

7) Decision: Publish Version 0.6.5 minus R8,R14,F47 on CRM and FRBR Site, minus history appendix, all "B" properties inversed, together with minutes.

8) Action: make graphics from minutes of all FRBRoo concepts.

9) Create a cross-reference manual (& send SIS to Allen, Maja, CRM-FRBR also to Steve, Trond, C.E.)

10) Change Publishing Event to Publication Event

FRBR Relationships Work-Work:

has a successor: logical = R57 is logical successor of Work – Work

Comment: This property seems to be a special case of a more general relationship of "horizontal intellectual structure". To exist, it requires that the connected components are part of a common whole. The difference between roles between components and roles with respect to the whole (which would be specializations of part\_of), was not clarified in the discussion.

summarization, adaptation, transformation, imitation = R58 is derivative of Work – Work, R58.1 has type: Type  
 supplement / complement = part of at Expression level.

Between Expressions of the same Work:  
 abridgement, translation, revision, arrangement = regarded as derivative between the associated Individual Works.

Between Expressions of different Work: regarded as relations between the associated Individual Works, see above.

Expression-to-Work : regarded as relations between the associated Individual Work of an Expression and a Complex Work in general, see above.

Reproduction (Manifestation – Manifestation):

Reproduction Event R59 reproduced (was reproduced by) : E84 Information Carrier  
 Reproduction Event R60 produced (was produced by) : E84 Information Carrier (subproperty of P108).

E84 Information Carrier : R61 is reproduction of (has reproduction): E84 Information Carrier (shortcut of R59-R60).

Action: Discuss to which degree Facsimile Production or microfilming should be regarded as reproduction in the sense of FRBRoo. The question is where the line is drawn, if necessary, to general image creation processes and replica production.

Finally, we regard F44 Reproduction Event in a narrow sense, which does not include Facsimile production, which we consider publications in their own right. We further assume a substantial material similarity between the produced and the reproduced, which excludes photography in general, digitization and microfilming.

Action: Check what the nature of a mirror site in Electronic Publishing is.

Drop “ alternative” = shares the same (Publication) Expression.

Whole-Part Manifestation – Manifestation:

Rather a relationship between parts of an overall Publication Expression and the Publication Expression. Manifestation Singletons have parts, and Manifestation Product Types may prescribe parts of Items.

Discussion: In the future, the distinction of Manifestation Product Type and Publication Expression may turn out to be insubstantial, as the first is an intellectual product anyhow.

If they are distinct, an ISBN number standing for a combination of products that are in turn identified by ISBN Numbers is a true case of Manifestation Product Type having parts that cannot be reduced to parts of a common Expression.

Manifestation Product Type CLP46 may be composed of Manifestation Product Type :  
 An instance of MPT may prescribe a part of relationship for its instances.

Action: Find better name for CLP46

Discussion: This property may be confused with part\_of of the Publication Expression.

Table 5.9 (Man.-Item) see reproduction above.

Table 5.10, reproduction: see above.

reconfiguration: equivalent to a path through E79, E80 Part addition/ removal

Table 5.11 whole part: P46 is composed of

FRBR to FRBRoo

Intended termination = If NO then it is a F32 Serial Work

Intended audience = Work: P103 was intended for (“to be read by children” etc.)

Medium of performance: A) the type of the Expression, B) a suitable supertype of the medium should be assigned to the Work as “R1 constraining supertype (such as Musical Work, Fine Arts,...)”.

Key: Part of uniform title for music. Type of Expression.

Coordinates, Equinox: is about (the place depicted by the map : E27 Site located at E53 Place identified by...Coordinate)

Extensibility of Expression: Only Work level: Work can acquire parts but never loose parts. (probably: Expression R56 realizes Individual Work R12B is member of Serial Work). Not clear distinction to “intended termination”)

Revisability: A) Periodic update = Serial Work see above

B) Draft = Work P2 has type

Summarization: F2 Expression P106 is composed of F2 Expression has type (summary etc.)

Sequencing pattern, expected regularity, expected frequency;

Serial Work: R62 has issuing rules E29 Design or Procedure

(Note, that the issuing policy may also characterize the Type of the Serial Work. R62 can be perceived as describing an Expression of the Serial Work (The issuing rules being regarded as an information object). In the case no explicit issuing rules exist, they may be captured by Serial Work P3 has note E62 String, P3.1 has type :”issuing rules”).

4.3.17 Medium of performance = Expression P2 has type E55 Type (2 pianos+soprano+...)

Scale, Projection = Visual Item P138 represents E1 CRM Entity, P138.1 has type E55 Type ( Scale X, Projection Y).

Recording technique, Special characteristics: Attributes of the Expression Creation, or of the Design or Procedure it used. Some of the values may pertain to Expression P2 has type.

Publication Status: Serial Work has type or has note. (Note that using a type may be controversial: A Serial Work may be taken up again. The change from being active to be inactive may not be seen as a change of Type. Note that a “dead serial” does not leave a corpse behind...).

4.4.23 Numbering = part of the Manifestation Product Type Identifier , or equal to sequencing pattern (see above). (To be clarified by Patrick/Maja).

System Requirements :

4.4.34,35,36 = Type of the Manifestation Product Type (Formats are regarded to be part of the substance of the Manifestation Product Type. Alternatively, we could introduce Dublin Core DC.Format)

Mode of Access, access Address:

Change R37 shows how to realize(was realized by) into R37 shows how to realize (can be realized by)

map Mode of Access, Access Adress to Manifestation Product Type R37B can be realized by : F39 Production Plan

Item Attributes:

Fingerprint = Identifies Items non-uniquely by a value produced from a set of objective features. It may be used to group Items by equivalence under such an identifier.

F5 Item P1 is identified by E41 Appellation

Scheduled treatment: Out of scope (Item level description, e.g. has note, not relevant for global information integration).

Person Relationships:

has created = P14B carried out F30 Work Conception R21 initiated F1 Work

has produced =

A) P14B carried out F45 Publication Event R55 created production plan F39 Production Plan R37 shows how to realize F3 Manifestation Product Type

B) P14B carried out F40 Carrier Production Event R38 produced things of type F3 Manifestation Product Type

C) P14B carried out F31 Expression Creation R45 created F4 Manifestation Singleton

has realized = P14B carried out F31 Expression Creation R22 created F2 Expression

(Note that the link “P14B carried out” has a link P14.1 in the role of in order to specify the particular role of the Actor in this Activity.)

is owner of = P51B is former or current owner of E18 Physical Thing

is subject of = P129B is subject of F1Work (domain of P129 to be discussed => Action for CRM-SIG).

Corporate Body Relationships

Identical to person.

Concept, Object, Event, Place relationships. OK.

attributes: “Term for the...” = P1 is identified by E41 Appellation

Interrupt:

Define F6, OK, F7, OK,

F9 = Action for CRM-SIG: Relax definition of Conceptual Object (products of our mind is too narrow for things like images). Now regard F9 = E28.

Remove F6 Family (to be introduced later in FRARoo).

Reintroduce Person, (have all dominant FRBR Concepts named in FRBRoo).

F11 Event: Use CRM Scope Note for Period, note added not to confuse with “abstract events”.

F12 Place: Use CRM Scope note. We reinterpreted the FRBR scope note for Place: instead of “geographic features” we mean “location of geographic features” etc. By that, the FRBR definition becomes compatible with the CRM definition.

Person attributes:

Are part of the identifier. Title = Type.

Action: Proper treatment of Social roles as “Pseudo Persons” to be proposed to CRM-SIG. (AACR: President of the United States = Corporate Body).

Corporate Attributes:

Place associated with: A) If the Group is given by an Event: Place of the Activity  
B) The seat of the Group: P74 has current or former residence: E53 Place P87 is identified by E44 Place Appellation

Date associated with: A) If the Group is given by an Event: Date of the Activity

B) P95B E66 Formation.....

Manifestation attributes:

4.4.4-4.4.6

The notion of “distribution” A) an Actor having acquired the right to sell the product, nominated by the Publication Event B) Importer only C) Local distributor translating/dubbing video etc.

All cases are regarded as rights on the Manifestation Product Type:

Manifestation Product Type becomes instance of Legal Object.

Map to P104 is subject to E30 Right (P2 has type = “distribution right”) P75B is possessed by E39 Actor P74 has current or former residence: E53 Place P87 is identified by E44 Place Appellation

We assume that there is no “date of distribution” in reality.

Example of CLP104 actually is a right on the Manifestation Product Type per se, not on individual items of it. To be changed.

Making MPT subclass of Legal Object allows for describing all rights on the MPT per se by P105, P105.

Modelling FRBR finished at 14:42 28/6/06

Publish FRBRoo 0.6.5 as htm on CRM & FRBR Site., the VISIO file

## 8th Meeting on FRBR/CRM Harmonization, held in conjunction with a CIDOC CRM SIG Meeting

Heraklion (Crete), ICS-FORTH,  
25-27 October 2006

Participants: Trond Aalberg (IDI, NTNU, Norway), Chryssoula Bekiari (ICS-FORTH, Greece), Martin Doerr (ICS-FORTH, Greece), Nicolas Esposito (on day 1) (CNRS, France), Günther Görz (on day 1) (Erlangen University, Germany), Max Jacob (on day 1) (IRCAM, France), Patrick Le Bœuf (BnF, France), Ebrahim Mottaghi (Uppsala University, Sweden), Kurt Nyberg (Uppsala University, Sweden), Mika Nyman (Synapse Computing Oy, Finland), Christian Emil Ore (Oslo University, Norway, and chair of ICOM CIDOC), Allen Renear (GSLIS/UIUC, Illinois, USA), Pat Riva (McGill University, Canada, and chair of the IFLA FRBR Review Group), Richard Smiraglia (Long Island University, USA), Steve Stead (Paveprime Ltd, UK), Richard Urban (University of Illinois Urbana Champaign, USA), Håkon Bjørge Vestli (Oslo University College, Norway), Thomas Wikman (Uppsala University, Sweden), Maja Žumer (Ljubljana University, Slovenia).

### *CIDOC CRM SIG Meeting*

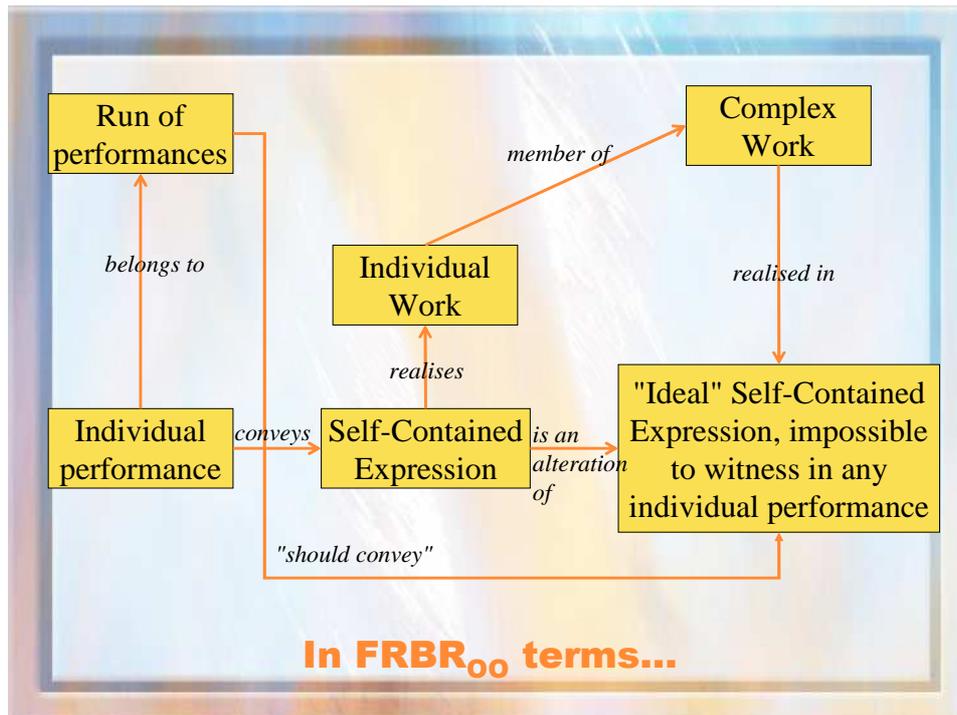
Martin Doerr gives a status report on CRM SIG activities:

- ongoing harmonisation work with FRBR,
- ongoing harmonisation work with TEI,
- Gerald Stone attended the CIDOC Conference, he is interested in harmonising archival practice (especially DACS) with CIDOC CRM,
- ISO: the CRM SIG will have to propose relatively soon an amendment relating to the following changes:
  - *P33 used specific technique*: current domain is E11 Modification, to be replaced with E7 Activity;
  - *P32 used general technique*: current domain is E11 Modification, to be replaced with E7 Activity;
  - *P69 is associated with* can be used to describe sequences of procedures;
  - F14 Identifier and *R51 consists of (forms part of)*, which result from the harmonisation of FRBR with the CIDOC CRM, should be added to the CIDOC CRM, with E42 Object Identifier declared as a subclass of F14 Identifier; both E42 and F14 can be constructed and consist of instances of E41 Appellation (Steve Stead to elaborate a complete proposal);
  - Revised scope note for E28 Conceptual Object: Steve Stead's proposal is accepted and should go to the definition of the CIDOC CRM.

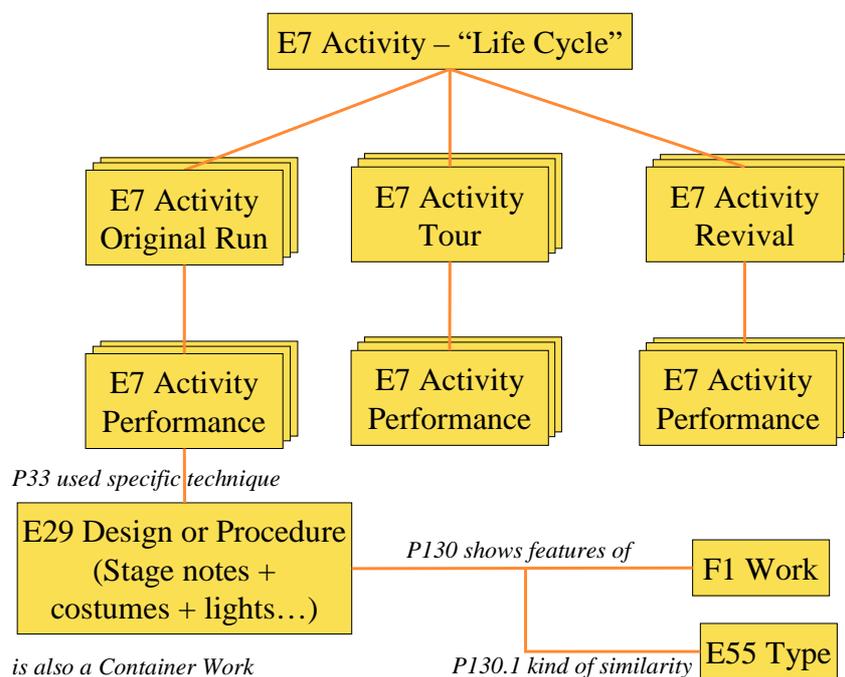
In addition, should a property named “memorised in” be created from E28 Conceptual Object to individuals? Steve Stead opines that we should deal with that only once we have dealt with oral traditions in FRBRoo.

### *FRBR/CIDOC CRM Harmonisation Working Group – Meeting #8*

The topic of performing arts is addressed. Patrick Le Bœuf gives a presentation titled *Performing arts as a field for conceptual modelling*, which contains the following proposal:



Steve Stead develops on the spot an alternate proposal:



Martin Doerr proposes the following, which is accepted by all:

Mise-en-scène is a Work (a Container Work), which elaborates, in a majority of cases, on something existing (typically, the text of a play); it has an Expression which is only virtual (consisting of dialogues between stage directors and actors, light designers, costume designers, etc.); it is a specialisation of E29 Design or Procedure in that it has a prescriptive nature (let's call it "Stage Directions" or "Performance Directions" for lack of a better term for the time being) which implies the use ("incorporates") of the text or parts of the text of the play (F2 Expression). Performances can be captured through an activity of recording which creates a new, distinct Work. To sum up, we declare 4 new entities and 2 new properties:

F50 Performance Directions: is a subclass of F20 Self-Contained Expression and of E29 Design or Procedure. Property: *R63 incorporates* F2 Expression.

F51 Stage Production Work: is a subclass of F48 Container Work (unless it is an extemporisation, such as in the Commedia dell'Arte).

F52 Performance: is a subclass of E7 Activity. Can be instantiated by a single performance, a run of performances, an original run of performances + its tours and revivals. Property: *R64 performed* F50 Performance Directions.

F53: Recording Work: to be discussed at next meeting.

*Actions:* Patrick Le Bœuf to provide draft scope notes for F50, F51, F52, R63, and R64, along with suggestions for better names (those entities should cover any kind of shows, not just theatrical productions, i.e. they should cover choreographic works, puppet shows, Commedia dell'Arte extemporisations, street theatre, etc.) and practical examples from the BnF's databases both in MARC format and in EAD; Trond Aalberg to provide examples as well; Mika Nyman and Richard Smiraglia to draft a proposal about about the scope of F53 Recording Work (which should cover also taking photographs of museum objects).

Nicolas Esposito (CNRS) and Max Jacob (IRCAM) give a presentation of the CASPAR Project (Cultural, Artistic & Scientific knowledge for Preservation, Access & Retrieval). The goal is to document the creation process of works (who did what?), to ensure long-term understandability and preservation. It is necessary to store *comments*, and to handle interactions between works, performances, machines, and audience. The draft conceptual model underlying the CASPAR Project is named AWLCD (Artistic Work Life-Cycle Description). Interactive systems used in contemporary music are a challenge: there is a need to document them in order to have the possibility to replay the work in the future. How to express that kind of documentation in FRBR and/or CIDOC CRM?

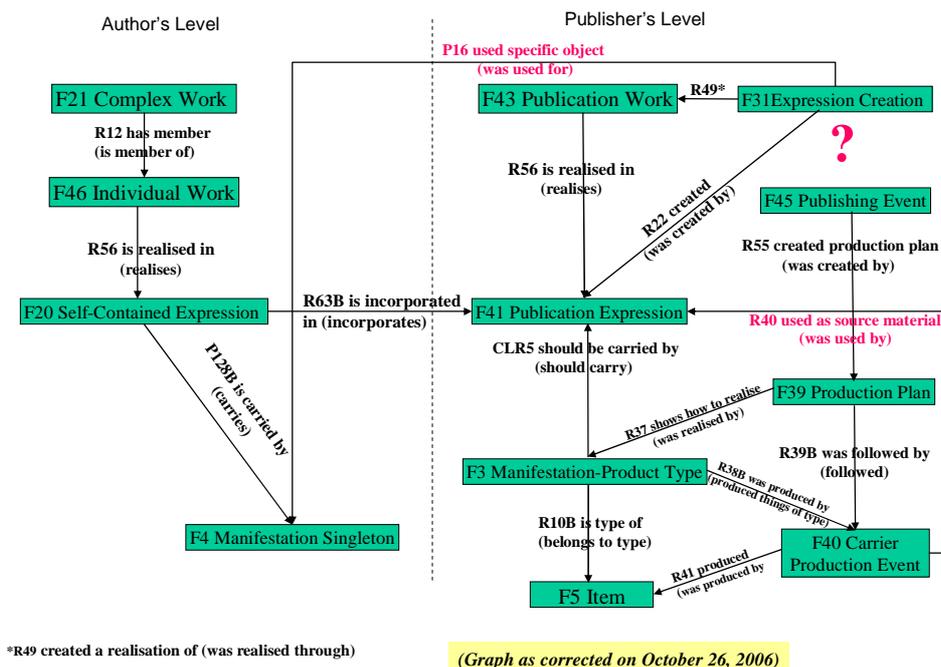
Martin Doerr opines that such issues can be covered by FRBRoo.

On the basis of his proposal for performing arts, Martin Doerr argues that we were wrong to use the property *R11 forms part of* between F20 Self-Contained Expression and F41 Publication Expression. This case is actually very similar to the incorporation of existing material in a given instance of Expression, which is the object of the newly created property *R63 incorporates*. Similarly, this expresses adequately the relation between a pre-existing Expression and the Expression of a Container Work; he proposes therefore a generalisation of all three cases (i.e.: inclusion of an Expression in, say, an anthology; addition of renditional features in a publication; and addition of gestures, lighting, costumes etc. to the text of the play) through a single property: *R63 incorporates (is incorporated in)*. Its domain is generalised to F20 Self-Contained Expression:

F20 Self-Contained Expression *R63 incorporates (is incorporated in)* F2 Expression.

*Action:* Patrick Le Bœuf to redraft the scope note for *R11 is composed of (forms part of)* in order to make it clear that we make a distinction between *component* relationship and *inclusion*.

Martin Doerr then exposes the problem we have with publication processes. F40 Carrier Production Event should not be linked directly to F4 Manifestation Singleton – it is the creation of the F41 Publication Expression that makes use of the F4 Manifestation Singleton. The graph sent by Martin Doerr prior to the meeting is corrected accordingly. The correct chain is: F40 Carrier Production Event *R40 used as source material (was used by)* F41 Publication Expression.



A discussion followed, about the use and dissemination of FRBRoo. Pat Riva's view is that we should first finish this work and have it go through the approval process (in 3 steps: approval by the FRBR Review Group, approval by the IFLA Cataloguing Section's Standing Committee, worldwide review), and then see if it implies changes in the ER version of a FRBR (for a future 2nd edition).

Similarly, FRBRoo has to go through the process of CIDOC approval. Martin envisions three actions to be launched:

1. Define the extent of FRBRoo for approval. For that purpose, use the scope of CIDOC CRM and transpose it to the library world. What we want to be approved is just the definition of FRBRoo, but in order to be fully understood, it has to be sent along with graphical annotations, Trond Aalberg's mapping from FRBRer to FRBRoo, the list of entities and properties borrowed from CIDOC CRM, and mappings from records in various formats to FRBRoo (in order to illustrate that the purpose is *information integration*). The scope of FRBRoo shall be drafted in 3 steps:

- a) an initial scope for approval (to be drafted by Allen Renear by the end of November);
- b) a current practical scope (to be drafted by Martin Doerr), and finally
- c) an extended scope (to be drafted by Pat Riva and Patrick Le Bœuf).

2. Define the relation of FRBRer and FRBRoo. This was done on the spot: FRBRoo represents the properties/attributes of FRBRer; it represents the concepts behind documentation structures (*not* how they should be used or what their functions are); it provides more elaborate explanation; it makes a connection between FRBR and a wider CRM scope.

3. Produce a set of recommendations:

- a) placement of the semantics of the attributes (to be drafted by Trond Aalberg), and
- b) text of definitions of the entities in FRBR (to be drafted by Martin Doerr).

Discussion about how to model URLs. Martin Doerr argues that they are Physical Object Identifiers for information carriers. Mappings should be revised accordingly.

All the properties declared in FRBRoo are examined in order to determine what their superproperty in CIDOC CRM is, so that FRBRoo can be said to be an extension of CIDOC CRM. Some of them cannot be handled on the spot as they pertain to the Meta-CRM. These are postponed for the time being. For all other properties, the next version of the definition of FRBRoo will indicate what their superproperty is in CIDOC CRM.

Maja Žumer proposes that the members of the IFLA FRSAR Group (Functional Requirements for Subject Authority Records, in charge of modelling aboutness relationships) should be made aware of the CIDOC CRM through a tutorial on the occasion of their next meeting, due in Ohio on December 8-15. **Richard Smiraglia will give that tutorial.**

The examination of the FRAD document (Functional Requirements for Authority Data) highlights the fact that the notion of *persona* is not covered currently by the CIDOC CRM.

**Trond Aalberg will see what can be mapped trivially from FRAD to FRBRoo and what needs discussion at our next meeting. Maja Žumer and Pat Riva will compare the scope notes between CIDOC CRM, FRBRoo, and FRAD.**

**Martin Doerr and Patrick Le Bœuf will provide graphics of FRBRoo in function groups.**

Our next meeting will take place in Paris on March 14-16, 2007, possibly on two locations (National Library of France and C2RMF). **Patrick Le Bœuf to organise that meeting.**

***To do list:***

**Steve Stead** to elaborate a complete proposal for E42 Object Identifier and F14 Identifier.

**Patrick Le Bœuf** to provide draft scope notes for F50, F51, F52, R63 and R64, along with suggestions for better names and practical examples from the BnF's databases in MARC format and EAD.

**Trond Aalberg** to provide examples for performing arts as well.

**Mika Nyman** and **Richard Smiraglia** to draft a proposal about the scope of F53 Recording Work (should cover taking photographs of museum objects as well).

**Patrick Le Bœuf** to redraft the scope note for *R11 is composed of (forms part of)* in order to make it clear that we distinguish between *component* relationship and *inclusion*.

**Allen Renear** to draft by the end of November an initial scope for approval of FRBRoo.

**Martin Doerr** to draft a current practical scope for FRBRoo.

**Pat Riva** and **Patrick Le Bœuf** to draft an extended scope for FRBRoo.

**Trond Aalberg** to draft the placement of the semantics of the attributes as part of a set of recommendations.

**Martin Doerr** to draft a text of definitions of the entities in FRBR as part of a set of recommendations.

**Richard Smiraglia** to give the IFLA FRSAR Working Group a tutorial on CIDOC CRM and aboutness relationships at one point during their meeting in December 8-15.

**Trond Aalberg** to examine what in FRAD can be mapped trivially to FRBRoo and what deserves discussion in our next meeting.

**Maja Žumer** and **Pat Riva** to compare scope notes between CIDOC CRM, FRBRoo, and FRAD.

**Martin Doerr** and **Patrick Le Bœuf** to provide graphics of FRBRoo in function groups.

**Patrick Le Bœuf** to organise our next meeting in Paris on March 14-16, 2007.

## 9th Meeting on FRBR/CRM Harmonization

Paris (France), Bibliothèque nationale de France,  
14-16 March 2007

**Participants:** Trond Aalberg (BIBSYS, Norway), Martin Doerr (ICS-FORTH, Greece), Patrick Le Boeuf (National Library of France), Stephen Stead (Paveprime Ltd, United-Kingdom), Maja Žumer (National and University Library of Slovenia), Christian Emil Ore (university of Oslo, Norway), Allen Renear (GSLIS/ UIUC, Illinois, USA), Max Jacob (IRCAM), Lars Gynnar Eggen (NTNU), Richard Smiraglia (Long Island University), Mika Nyman (University of JYVASKULA), Erik Gebers (UTC-CNRS), Frédéric Curnu (IRCAM), Guillaume Boutard (IRCAM), Jérôme Barthélémy (IRCAM), Jacob Lundqvist (ICMM), Thomas Wikman, Rodolphe Bailly (Cité de la musique), Jürgen Keiper (Stiftung DeutschKinemathek), Chryssoula Bekiari (ICS-FORTH, Greece)

### ***MEETING #9 STEP BY STEP***

**14 March**

#### **Discussion notes**

It is not possible for us to discuss FRAD in detail, as its definition is not stable yet. Maja explains that the text that is publicly available is the 2005 document, while the 2006 version is not really out.

Discussion about Scope notes

#### 1. F50 Staging or Choreographic Directions / Intended Performance Text

Martin argued that we must be careful to distinguish between the planned features of (stage) productions and their accidental ones. The intention of a stage production is a historical fact that we can document; the actual outcome is also a fact that we can document; but we should not press them in together.

We can document a comparison of the intention with the outcome. We cannot document the outcome based on the intention, i.e. to use the intention as a schema for the outcome. When we have an actual event we classify the event according to what happened, and not what was planned. No decision is made on the spot about F50; this is postponed to day 3 of the meeting.

#### 2. F51 Stage Production or Choreographic Work => Performance Work

We must rewrite the scope note to incorporate music and other kind of performances

We use the notion of work to classify the performances.

The term “expression” is misleading. Performance is not an expression under the terms of FRBR. The performance is like an activity without product. If we want to have a “uniform” expression we should think about expressions that consist of products and other expressions that do not.

The colleagues from IRCAM said that the performance leaves its outcome in our mind which we may write down. A problem to that opinion is the level of detail that somebody keeps.

After that we came to the conclusion that if we regard expression as a set of symbols then performance is not an expression. But can a performance be regarded as some kind of Expression Creation?

Finally we conclude that “The performance is a more generalized notion than expression creation”. We all agreed to develop a notion of a generalization of performance. This notion should be discussed in the FRBR core discussion.

#### 3. F53 Recording work

An initial issue was that the “recording work” may be generalized to work and may be we don’t need this notion. We should clarify first what is suitable for capturing expressions of other works like photographing, movie making, documenting and where recording stands. We all agreed on the three aspects of recording work which are (i) recording aspect (ii) characteristics of the technology (iii) the transportation of an information object. The scope note of recording work should address a.) the added value, b.) the technology of recording 3.) the intellectual genre. Is Recording Work a subclass of Container Work (which would stress the “added value” aspect), Complex Work, or just Work?

Mika Nyman will help in writing the scope note of F53.

#### 4. Super properties problems.

R40: we should rephrase the examples

R62: we delete the subproperty R63

R63: we delete the super property of R62. We should add examples for a citation and for an anthology.

R26: is an issue for CRM, P16 is a pending issue.

R51: we delete P106

R52: P33 cannot be a superproperty of R52 in the ISO version of CRM. We should keep a note in each FRBR version about the version of CRM we use.

5. Discussion about “how we identify the work”. The comment was that we have no relation between work, expression and fragment. We decided (1) to define a new property R65 is realised in (realises) from F1 Work to F20 Self contained expression (like R13 is realised in (realises) from F21 Complex Work to Self-Contained Expression) (2) to change the domain and the range of R2 has representative expression (is representative expression for) and (3) the new property “realises” to be super property of R2. The new graphical presentations are attached to these minutes.
6. General discussion about mapping between FRAD and FRBR attributes. Trond presented the mappings.

### 15 March

#### Discussion notes

Discussion about Performing Arts

7. Martin presented the slide with the added value chain (it is attached with the changes in these minutes). We remarked that a relationship of Activity which shows “how to realise” is missing from the CRM and it could be useful. Martin argued that an activity is only *influenced* by the plan it was supposed to follow: there are all degrees of deviations from that plan. We can therefore not just say: "This follows the plan" or "This does *not* follow the plan." A plan can show future features of the intended thing to be produced, or just tell how to produce it. In documentary practice, we may have evidence of the plan, and/or outcomes that claim or seem to follow the plan. We can perceive and classify such outcomes. Martin sees a certain similarity between communicating signs in a performance, and writing.
8. Jérôme Barthélémy, from IRCAM, gave a presentation about the current IRCAM system, named MUSTICA, and the CASPAR project which is being developed at IRCAM as a successor to MUSTICA. CASPAR is designed to overcome MUSTICA's limitations and is interested in the potential of CIDOC CRM and FRBRoo in that regard. Martin argued that the problems encountered in contemporary music (especially electronic music) are not really new. In particular, he argued that we may never be able to reproduce the initial tune or melody written in a score because the musical instrument that the composer had in mind may be not exist any more. However we always are capable to adapt the music written in a score to contemporary instruments. Therefore we agreed that there may be no similarity between the outcome of an activity and the intended plan. The same phenomenon is true for the books too. Martin presented the activity-object slide, attached to these minutes, and we decided to find a better term for the “Container Work” and to find a class to cover the performing art work. We proposed the term “aggregation work”. In the aggregation work we add intellectual qualities unaltered and these may be brought in front of us simultaneously while the members of a complex work cannot be brought in front of us together. For example the translations of a text are not being presented together, unlike the members of a performing art work which are being presented all together.

The scope note of F48 Container Work doesn't fit to performing arts and we need to rewrite that scope note in order to include them.

So we noted that if we create a new class, this class should be superclass of container work, publication work and stage production work.

Finally we decided to rename the class F48 from “container work” to “aggregation work” and to name the new class F54 “container work” for the moment until another better term is found. Martin will write the scope note of this new class. The key concept for that new class is that it preserves expressions of other works.

In the slide of ADT show we will put on the top the complex work. We don't change the model now but when we formulate the FRBR core.

At this point we made another issue for CRM about design or Procedure. Should the scope of E29 include how to perform an activity without products? In CRM the “Design or Procedure” is defined to making things, not how to do something in general.

We decided to put in the FRBRoo site the examples for ADT.

Max Jacob will make an added value chain paradigm.

9. Talking about Recording work, we decided that we need an event that records an activity, so we create the class F55 Recording Event, with the attribute R66 Recorded. F55 IsA Expression Creation and F55 R67 created F56 Recording

At this point we decided to revise the directions of all links assigning priorities to the most physical through the most abstract to have a common principle for the whole document.

We accept the scope note of F50 (renamed: Performance Plan) while Steve will improve the scope note of F51 (renamed: Performance Work).

Patrick will revise the examples of F48.

A fundamental characteristic of Recording is that you should be there all the time in order to capture the performance.

What is the real nature of the recording work? We should clarify the scope of Recording: is it limited to recording occurments or should it be extended to documenting any reality (including perdurants)?

If the recording should imply the use of technology, is it just for rendering the sound or audiovisual?

Mika and Emil will elaborate the definition of F53 Recording work, F55 Recording event and F56 Recording in relation to each other.

Max Jacob, in cooperation with Emil, will revise the link between F50 ->F56. A proposed name of this link is "reflects".

10. In the next meeting we should think about oral history and cartography

11. Talking about the FRBR core, Trond said that we should publish FRBRoo in OWL and RDFS. A question is posed by Trond should we have different core formats or will we have one generic?

Martin proposed that we should revise the whole model to see the granularity levels we cover. Also it is clarified that motivation behind the FRBR is the clustering so the end user should be able to find multiple editions of the same work. FRBR up to now has a notion of work. Epistemologically we reconstruct the work from the outcomes. The added value chain shows a clustering mechanism.

Special interest we have in cross overs.

A job left is to analyze the metadata of a typical recording.

Trond will make a simplified XML format of FRBRoo and Martin, Smiraglia and Max will help in this task.

The discussion ended with the question "What should our core schema look like?" and Martin said that an interesting question to be answered is what are the most general constructs in order to model a music of a film which later has its own history or more general to model a complex work which has crossing with other expressions, works. Suggest to use: the movie titled *Frida* & songs by Chavela Vargas (released as both a CD on its own and as the original soundtrack of the movie).

We all agree that if the next meeting is to take place on July 9<sup>th</sup> in Edinburgh, we should have all these by the end of June.

## 16 March

### Discussion notes

12. Discussion about publication creation event, after Martin's proposal about publication creation event, we decided instead of creating a new class to use the "type" attribute of CRM.
13. Talking about recording and attribute assignment we accepted that (i) a digital image can be regarded as a kind of measurement (ii) an electronic image is a dimension is an array of numbers of colours and intensions (iii) also it has the aboutness which is true for all measurements. (iv) the digital recording of the sound is a measurement, can we think the recording work as a measurement?
14. Maja gave a presentation about FRSAR. We all agreed that we want to create an identifier in order to be able to retrieve a book which addresses the subject we want. Martin said that finally we want to ask about relationships. The real problem is that we try to cover everything by using the subject.
15. General discussion about FRAD we made the following comments:
- Talking about the attributes and relationships of the "Name" entity: "Scope of usage" and "Date of usage": these attributes indicate the context in which a name is used - who uses this identifier and what for? We conclude that the scope and date of usage do not pertain to the names themselves but to *activities* dealing with the names.
  - An issue for CRM is that the property *P139 has alternative form* should have its own "has type" property (P139.1). This would allow us to deal with the FRAD attribute "transliteration scheme of name" of the Name entity.

- c. About F23 Expression fragment: We should check to which degree expression fragment is a relationship and not a class by its own.
- d. Another issue is “Manifestation Product type Isa actually an information object?”
- e. Issues for CRM: (1) “do we need a generalized class to identify usage?” (2) “how to model digital image taking or digital recording?”
- f. Talking about “Family” and in the light of FRAD we decided to continue the discussion about group/individual relations in CRM which took place at Nuremberg on the 10th CIDOC CRM Special Interest Group Meeting in 9-10th December 2004 [http://cidoc.ics.forth.gr/docs/10th\\_crm\\_meeting\\_minutes.pdf](http://cidoc.ics.forth.gr/docs/10th_crm_meeting_minutes.pdf)

16. Closing the meeting we made the following proposals and comments:

- a. Allen will check manifestation and we may ask Pat Riva to take a position on this
- b. Talking about FRBR intended scope we made the following comment “we try to normalize FRBR seen from outer view”
- c. Maja will merge Martin’s and Allen’s text.

### Summarized task list

1	Maja Žumer	1. update the practical scope of FRBR by merging Martin’s and Allen’s text (no.16c)
2	Allen Renear	2. will check the manifestation
2	Patrick Le Boeuf	1. revise the examples of F48.
3	Mika Neyman	1. F53 Recording work, F55 Recording event and F56 Recording in relation to each other. (see no. 9)
4	Christian-Emil Ore	1. F53 Recording work, F55 Recording event and F56 Recording in relation to each other. (see no. 9)
5	Chryssoula Bekiari	1. to help Trond in making the simplified XML format of FRBRoo
6	Stephen Stead	1. to improve the scope note of F51 (see no. 9)
7	Martin Doerr	1. to rewrite the scope note of F54 “container work” (see no. 8)
8	Trond Aalberg	1. make a simplified XML format of FRBRoo (see no. 11)
	Richard Smiraglia	2. help Trond in making a simplified XML format of FRBRoo (see no. 11)
9	Max Jacob	1. to write an added value chain paradigm. (see no. 8) 2. revise the link “reflects” between F50 ->F56 (see no. 9) 3. help Trond in making a simplified XML format of FRBRoo (see no. 11)
10	To do	9. F51: rewrite the scope note to incorporate music and other kind of performances 10. to develop a notion of a generalization of performance in FRBR core (see no.2) 11. R40 we should change the examples (see no. 4) 12. R63: add examples for a citation and an anthology (see no. 4) 13. to change the scope note of F48 (see no. 8) 14. to revise the directions of all links assigning priorities to the most physical through the most abstract to have a common principle for the whole document (see no. 9) 15. to analyze the metadata of a typical recording (see no. 11)
11.	CRM issues	24. P16 used specific object (was used for) in R26 used constituent(was used in) (see no. 4) 25. “how to realise” (see no.7) 26. the property P139 has alternative form should have “has type”(see no. 15b) 27. to check if we need a generalized class to identify usage (no. 15e)

		28. to see how to model digital image taking or digital recording(no.15e) 29. continue the discussion of 10 <sup>th</sup> SIG meeting about Family relations (no.15f)
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**Follow-up and plans for the future**

3. agenda for Edinburgh meeting (9<sup>th</sup> of July):
  - a. to think about oral history and cartography
  - b. to make proposals about FRBR core

# 10th Meeting on FRBR/CRM Harmonization, together with 15th CIDOC CRM SIG Meeting

e-Science Institute, Edinburgh (United Kingdom),  
9-12 July 2007

## Participants:

on all 4 days: Trond Aalberg (BIBSYS, Norway), Chryssoula Bekiari (ICS-FORTH, Greece), Martin Doerr (ICS-FORTH, Greece), Patrick Le Boeuf (National Library of France), Mika Nyman (Synapse Computing Oy, Finland), Richard Smiraglia (Long Island University, USA), Stephen Stead (Paveprime Ltd, United-Kingdom), Vasiliki Bountouri (IONIO University, Greece), Maja Žumer (National and University Library of Slovenia), plus:

on day 1 (FRBRoo): Isabel Holroyd (British & Irish Archaeological Bibliography), Mikko Leino (Finnish National Gallery), Matthew Stiff (Centre for Ecology and Hydrology, United Kingdom)

on day 2 (CIDOC CRM SIG): Dolores Iorizzo (Imperial College, United Kingdom), Siegfried Krause (Germanisches Nationalmuseum), Mikko Leino (Finnish National Gallery), Matthew Stiff (Centre for Ecology and Hydrology, United Kingdom)

on day 3 (CIDOC CRM SIG): Dolores Iorizzo (Imperial College, United Kingdom), Siegfried Krause (Germanisches Nationalmuseum), Mikko Leino (Finnish National Gallery), Gordon McKenna (MDA, United Kingdom)

on day 4 (FRBRoo and CIDOC CRM SIG): Siegfried Krause (Germanisches Nationalmuseum), Keith May (English Heritage, United Kingdom), Gordon McKenna (MDA, United Kingdom), Matthew Stiff (Centre for Ecology and Hydrology, United Kingdom)

## Monday, July 9, 2007: Addressing FRBRoo issues

### 1. Revise F53 Recording Work, F55 Recording Event, F56 Recording and their relations

#### *Discussion*

F53 Recording Work, F55 Recording Event, F56 Recording: Mika Nyman shows the diagram he prepared.

Issue discussed: Does the notion of "Recording" such as conceived in the model imply the use of a technology?

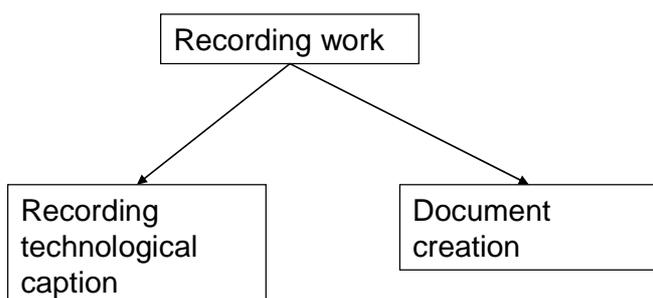
We see three aspects of Recording event: (a) the Reproduction, (b) the present preservation, (c) the Recording process.

A critical question about the recording event was: Is there an analogy between the technical process of recording something and the creation of a document? An argument was that recording something differs from documenting something; typically, the focus of Librarians is the outcome of the recording, not the activity itself.

After that we accepted that we should clarify the notions of recording, creating a document about a performance, and the technical process that we do for the recording

Question: is the recording work a plan? An argument was that, in any case there is one to one correspondence between the nature of the work and the nature of the recording.

Question: Should we define recording event as a technical process or recording as a documentation event?



An argument was that the reading recording and technical recording are equivalent.

*Outcome of discussion*

The group agreed that the recorded thing has “perdurant” nature, “always something happening” . Photographs are excluded from the field of Recording. As a consequence, the scope note for F53 Recording Work should be corrected.

***Maja Žumer and Richard Smiraglia*** to reword scope note for F53 Recording Work and F56 Recording

2. Change the scope note and revise the examples of F48 Aggregation Work

*Discussion*

We examined the new wording of the examples proposed by Patrick Le Bœuf (addition of the phrase "the conceptual content" to all examples).

*Outcome of discussion*

The group prefers the following wording: "the aggregation and arrangement concept", which will be added consistently to all examples for F48 Aggregation Work.

The changes proposed by Patrick Le Bœuf on p. 11-12 for the scope note of the Introduction are accepted.

3. Discuss scope note of F50 Performance Plan

*Discussion*

We read Guillaume Boutard’s comment for F50. The text of the comment was

“suggestion to the scope note of F50 Performance Plan:

“as i wrote in the luigi nono document the scope seems inconsistent or at least not clear enough. In the 'added value' paradigm you wrote for the F51 Performance Work scope note "The musical score of a symphony is not a part of the conductor’s conceptions for performance, but is incorporated in the conductor’s instructions to the orchestra." for this reason i think that the sentence "In the case of musical performances, such directions may include, but are not limited nor reducible to, the musical score. In case of electronic music, they may include software instructions." in the F50 Performance Plan scope note is misleading. It suggests that the score is part of the expression of the performing work. why not use incorporate instead of include as you wrote for theatrical performances (as it is the term of the property) and moreover it would be even clearer to specify R63 incorporates (is incorporated in). I do think it is quite clear on my side but someone new to frbr will find this inconsistent for sure”.

*Outcome of discussion*

Since Guillaume Boutard was not present, we will ask him to send us the revision of the scope note of F50. Chryssoula will send him an email

*Deadline*

4. Revise the scope note of F54 Container Work

*Discussion*

Martin Doerr proposes a new text for the scope note.

*Outcome of discussion*

The phrase "conceptual content" is replaced with "aggregation and arrangement concept" in example #1, and with just the word "concept" in example #2. Editorial changes are made in all examples, which are accepted.

5. Check the added value chain paradigm

*Discussion*

As Max Jacob was not present, it was not possible to review the added value chain paradigm.

### *Outcome of discussion*

We decided that we need a simplification of the added value chain in order to fit in one page. Martin and Chryssoula will elaborate the simplification up to the next meeting.

## 6. Review changes in FRBR text

### *Discussion*

The group then reviews all the changes that were proposed in the model since our last meeting, makes some additional changes for the sake of consistency, and reviews all the issues that had been postponed so far.

Chryssoula made a comment about the notation of the properties in subproperty and superproperty part in the property declaration in the FRBRoo. She proposed to add the domain and the range of the referred properties as they appear in ISO21127.

### *Outcome of discussion*

About **R37**: We revise the label and we rephrase the scope note of R37.

About **R69 is realised in (realises)**: the phrase "conceptual content" is replaced with "concept" in all examples. The property is declared as a subproperty of R65. **Scope note still missing.**

About **R70 is realised in (realises)**: the phrase "conceptual content" is replaced with "concept" in example #1; examples #2 and #3 are deleted. The property is **declared as a subproperty of R65.** *Scope note will be reviewed by end of this meeting.*

About **R56 is realised in (realises)**: this property was initially declared as a superproperty for both R69 and R70. The group now deletes this declaration, and declares R56 as a subproperty of (F1 Work) R65 *is realised in (realises)* (F20 Self-Contained Expression). *We left to check the quantifications*

About **R65 is realised (realises)**: is declared as a superproperty of both R69 and R70 and is declared as a subproperty of P130 *shows features of (features also found on)* and a superproperty of R56, R69, and R70.

About **R56 is realised in (realises)** and **R65 is realised (realises)** should have different cardinalities

About **R66 recorded (was recorded through)**: example slightly reworded. Scope note to be drafted by Smiraglia. To think if the range of this property should be the E5 Event.

About **R13 is realised in (realises)**: is this property redundant? This is an issue to be addressed at our next meeting

About **R55 created (was created by)**: the label changed.

About **R67 created (was created through)**: this property is declared as a subproperty of R22 *created (was created by)*. Example #1 slightly reworded, examples #2 and #3 deleted. *Scope note will be reviewed by end of this meeting.*

About **R49 created a realisation of (was realised through)**: the range of this property is redefined as being F1 Work (instead of F46 Individual Work). Scope note and examples rephrased accordingly. The property is declared as a subproperty of P16 *used specific object (was used for)*.

About **R40 used as source material (was used by)**: example accepted.

About **R63 incorporates (is incorporated in)**: the term "bits" is replaced with "phrases" in example #1. All examples are accepted.

About **R68 realised (was realised through)**: this property is declared as a subproperty of R49 *created a realisation of (was realised through)*. Example #1 slightly reworded and accepted, examples #2 and #3 deleted. *Scope note will be reviewed by end of this meeting.*

About **F16 Identifier Rule**: we had left in the scope note the statement: "Preliminary definition". We remove that statement and leave the scope note such as it stands.

About **F50 Performance Plan**: the examples proposed by Patrick Le Bœuf are accepted.

About **F51 Performance Work**: the rewording suggested by Patrick Le Bœuf is deemed too difficult to read, and looks like a comprehensive enumeration, which it should not be. The scope note is rephrased on the spot, but **still to be refined**. The examples are accepted.

*About F52 Performance:* examples accepted.

*About F53 Recording Work:* the phrase "conceptual content" is replaced with "concept" in the first example, which is accepted; the three other ones are deleted.

*About F55 Recording Event:* a scope note is drafted on the spot. Example #1 is reworded, and examples #2 and #3 are deleted.

*About F56 Recording:* examples #2 and #3 are deleted. *Scope note will be reviewed by end of this meeting.*

About properties notation in subproperty and superproperty part in property definition part, Chryssoula's suggestion to rewrite them following the notation of ISO 21127 is accepted.

Trond Aalberg will update the FRBRER to FRBROO mapping up to the next meeting, so as to take all the changes above into consideration.

Patrick Le Bœuf is asked to rephrase the paragraph on the Manifestation entity in the Introduction, on p. 12 and to answer to Pat Riva.

## 7. FRBR core

### *Discussion*

We left this discussion for Thursday morning

### *Outcome of discussion*

*Tuesday, July 10, 2007: Addressing CIDOC CRM issues*

## 8. Issue 54 Create a list of FAQs

### *Discussion*

The graphics layout in FAQ is not good. Martin proposed to find someone to develop the rest of FAQs.

### *Outcome of discussion*

FORTH will update the list of FAQs.

## 9. Issue 129 Define a comprehensive list of training materials

### *Discussion*

Stephen Stead thinks this is impossible. The CIDOC CRM SIG recommends that student projects and research grants should be found in order to produce training materials. Training materials will be approved by the SIG.

### *Outcome of discussion*

A Recommendation is proposed to find student projects at FORTH, IONION, SOUTHAMPTON and YORK and to give research grants to produce training materials. The training materials will be approved by the Group.

These actions will be coordinated by Martin at FORTH, by Lina Boundouri at IONION and by Stephen Stead at YORK and SOUTHAMPTON University.

## 10. Issue on authorities

### *Discussion*

Richard Smiraglia presented the slideshow he prepared about how "authority work" is performed in libraries, archives, and museums. Martin Doerr made the following comment on authority work:

	Proactive	Reactive
<i>Reduce</i> chance to find two things with one identifier	Internal keys GUIDs	Data cleaning Co-reference Social tagging
<i>Increase</i> chance that 2 parties come up with the same identifier for the same thing	Library rules	Authority files KOS

*Outcome of discussion*

11. House keeping of FRBR

*Discussion*

We reviewed Mika's draft and we check the remaining work in FRBR.

*Outcome of discussion*

Scope notes for recording work and recording event need further elaboration.

Richard Smiraglia will work on scope notes for Recording Work and Recording event, R66, R67, R68

Trond will write R65 scope note

Patrick will write the scope note of R69.

12. FRBR core

*Discussion*

The discussion here was about the methodology we should follow for defining the FRBR core. The first question was "what is the minimal network" and then we should check the data structures we need.

*Outcome of discussion*

We defined a three step process:

1. aggregation by common concept (intellectual derivation)
2. Structural aggregation
3. "added value incorporates"

Trond will make examples in XML and will send the XML Schema for FRBRoo Core.

13. How we continue with FRBR meeting group

*Discussion*

We discussed about FRAD and we saw that we don't have any implications with it.

Then we discussed how we could support different FRBR attributes.

Maja Žumer exposed that once we have finished the FRBRoo definition we will need a two- or three-year plan to show its practical utility and she suggested that a prototype implementation could be proposed under the umbrella of the Group.

*Outcome of discussion*

We decided

(1) to list all the mappings of FRBRER to FRBROO and then to check if in the mappings all the constructs of FRBROO are needed (Patrick up to the next meeting).

(2) to see which properties we may throw out. Patrick will review the properties

(3) to deliver draft 1.0 of the FRBRoo definition, and we will have to make sure that it is formally complete (although we may not at that point have a CRM superproperty for each FRBRoo property). Draft 1.0 will then be submitted to IFLA's reviewing process

(4) to work on a case study of BIAB (the british & irish archaeological bibliography) (Stephen with Isabel Holroyd will work for that)

(5) Trond Aalberg will check up to next meeting all the "has note" statements so that readers who are familiar with FRBRER but not with CIDOC CRM and the formalism we used in FRBRoo can retrieve the FRBRER attributes behind those "has note" statements; he will also check if there are details in FRBRoo that go beyond FRBRER.

(6) the next meeting will take place in Nuremberg, Germanisches Nationalmuseum: December 4-7, 2007. 2 days for FRBRoo, 1 day for CIDOC CRM housekeeping, 1 day for MetaCRM.

# 11<sup>th</sup> Meeting on FRBR/CRM Harmonization, together with 16<sup>th</sup> CIDOC CRM SIG Meeting

Germanisches Nationalmuseum, Nuremberg  
4 – 7 December 2007

## Participants:

Trond Aalberg (BIBSYS, Norway) [TA], Chryssoula Bekiari (ICS-FORTH, Greece) [CB], Martin Doerr (ICS-FORTH, Greece) [MD], Patrick Le Boeuf (National Library of France) [PLB], Mika Nyman (Synapse Computing Oy, Finland) [MN], Richard Smiraglia (Long Island University, USA) [RS], Maja Žumer (National and University Library, Slovenia) [MZ], Siegfried Krause (Germanisches Nationalmuseum) [SK], Christian Emil Ore (University of Oslo, Norway) [CEO], Pat Riva (Bibliothèque et Archives nationales du Québec, Canada & IFLA FRBR Review Group) [PR], Jan Pisanski (National and University Library, Slovenia) [JP], Maximilian Schich (Max-Planck Institut für Kunstgeschichte, Italy) [MS], Guenther Goerz (Universität Erlangen, Germany) [GG], Bernhard Schiemann (Universität Erlangen, Germany) [BS], Martin Oischinger (Universität Erlangen, Germany) [MO], Detlev Balzer (Deutsches Filminstitut), Karl-Heinz Lampe (ZFMK, Germany) [KHL], Regina Stein (ZIB, Germany) [ReS].

4/12

1. We review the text about F21 Recording Work and F31 Performance.
2. F21 Recording Work is A F16 Container Work.
3. CEO will write the examples about F21 Recording Work up to tomorrow.
4. The name of R22(R68) changed from *realised* (*was realised to*) to *created a realisation of* (*was realised through*), in order to follow the name of its superclass. We also add the scope note.
5. We add the scope note of RR21(R67), and we add its superproperty R17.
6. We made changes in the scope note of F25(F50). We substitute the word "include" with the word "incorporate" in 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> paragraph.
7. We added PLB's text in the scope note of R12(R69).
8. We discussed which should be the range of R3(R65), F22(F20) or F2(F2) and we decided it should be F22(F20). Also we added the scope note.
9. We decide to add to the mappings the FRBR<sub>ER</sub> section numbers as Pat proposed. FORTH will do this. [*It has been done*].
10. PLB will make an addition to 2.1 section of FRBRoo version 0.9 about the correct versions of IFLA and FRAD. [*It has been done*].
11. We decided to separate from the main text of FRBRoo the identifier assignment logic and to put them into an appendix. [*It has been done*].
12. We discussed PLB's text about representative assignment and we decided to put the representative assignment logic to the appendix too. Also we decided to delete R1. [*It has been done*].
13. We decided that F30(F45) Publication Event is a specialisation of Expression Creation instead of E65 Creation. Also we decided that the publication event should externalise the Publication Work and because we want to distinguish the *publication date* from the *printing date* we added two new properties R23(R71) and R24(R72).
14. TA should update the mappings to include the R30(R60), R31(R61) and R14(R63) for modelling the reproduction. [*It has been done*].
15. Martin will review the scope note of R31(R61). [*It has been done*].
16. In FRBRoo we see only three work-to-work relations: (i) derivation, (ii) complements/supplements (iii) incorporates.
17. We discussed about the final layout of FRBRoo version 0.9 and we decided (i) to add an introduction in the appendix (MZ will do this), to renumber the Classes and Properties (FORTH will do this), and to change the figures in the introduction (slide 8 to be in 3.3, slide 11 to be in 3.1, slide 10 to be in 3.2 and finally slide 1-5 to be fitted in a new section named "General

Overview”, slide 6,7 to be in the appendix). *[All of them have been done]*.

18. MN will produce a list of inherited properties in RDFS.
19. We changed the label of R5(R11), according to MD’s proposal.
20. We decided to delete (R13) and to keep R9(R56).
21. Last issue of this day was FRBR core.

The importance of FRBR core is to produce multiple data structures depending on specific functional requirements. We discussed the method that we have to follow in order to define FRBR core. Following this method we should examine:

- a. Compatibility with MARC. Semiautomatic creation of FRBR records from MARC records should be possible.
- b. Reduction of FRBR such as:
  - i. Publication expression = Manifestation type
  - ii. No subclass of work
  - iii. To include a minimal number of relationships in minimal core. A rule for this was to include only vertical (such as derivations and complement) relations to Work, not the horizontal.
  - iv. To examine if we gain something from the separation between Work and Expression. Martin proposed to delete Work from the minimal core and to keep only Expression. MD’s proposal is shown in the appendix #1.
- c. Design the graphical representation and from this derive one or more xml data structure. TA will make the simplification graphs which we should circulate then. We should have some explicit formulations on paper graphics first and then in RDF.

RS, MD, CEO, TA and PLB declared their interest to this action. Especially MD will see the reduced model in RDFS, TA will send the simplification graphs to all, and RS will examine semi-automatic clustering methods for the transformation.

5/12

22. We changed the scope note of *R61 is reproduction of (has reproduction)*.
23. We discussed about *E44 Reproduction Event* and digitisation. We decided that the substance of this event is the production of series of the same objects. Also we should add a note to the scope note to exclude digital publishing. We agreed that digitisation from something material to immaterial needs clarification. We see two aspects of the reproduction event. These are (1) similarity to the production process (2) the functionality of the result. The current scope note addresses only the second aspect. We should have an amendment to this scope note to address the first aspect, according to which a reproduction is a process that produces something very similar to the original. (No one volunteered to revise the scope note).
24. Martin made changes to TA’s suggested introduction to the mappings.
25. Discussing about scientific work, we tried to clarify the derivation process. We decided that in the introduction of FRBRoo it should be stated that this model goes beyond the bibliographic documentation. RS will write a paragraph for this. RS’s text is shown in appendix #9.
26. PR talked about the IFLA world wide review process. There is a formal approval period from beginning of February until the end of April. Then we should take the comments from the reviewers and we should update the FRBRoo version 0.9 to FRBRoo version 1.0. Then the final approval period will start. Its duration is about one month. Passing the approval stage means no negative votes by FRBR review group. After that there is a publication process. Electronic publication comes first. Then we have a discussion about the actions that we should take.
  - a. To add a comment to FRBRoo to address the added value that FRBRoo gives to CRM.
  - b. To add text about managerial overview (intended to be maintained jointly by IFLA & CIDOC) that clarifies the position of FRBRoo to FRBR<sub>ER</sub>, the utility, semantic interoperability.
  - c. To add reading instructions.
  - d. Next steps should be devoted to applications, implications and future extensions. The role of FRBRoo as an intellectual basis for multiple formats / applications should be commented upon, along with FRBR Core. Also there should be a reference to the conceptualisation of “scientific works”.

- e. Presentation of the model at the IFLA Conference in August 2008. We should make small presentations during the FRBR Review Group's meeting.
- f. Presentation at the CIDOC Conference.
- g. There was a proposal about having an event somewhere in USA. PR will investigate if we could have a meeting with the IFLA Working Group on aggregates and the IFLA Working Group on the Expression entity.
- h. To have a consolidated edition of FRBRoo version 0.9. ICS will make and circulate it. ICS will merge the amendments. PLB will make the final review. [*All of them have been done*].

7/12

- 27. We added the scope note to R13(R70) that CEO had elaborated. Also he will send an email about the examples of R13.
- 28. We reviewed the scope notes about R23(R71), R24(R72) that CB elaborated and we added them to the text.
- 29. FORTH will elaborate examples for R23(R71) and R24(R72).
- 30. RS will find an historical example for Publication Work and Publication Expression and FORTH will elaborate a contemporary one.
- 31. OPEN ISSUE: To examine if there are derivations between expressions that do not need understanding of the work they realize, e.g. musical transcriptions.
- 32. We updated the list of Editors and Contributors to FRBRoo.

### *To Do List*

MD:

- 1. will see the reduced model of FRBRoo (from the discussion about FRBR core, see #21).
- 2. will revise the scope note of F44 *Reproduction Event* to address the aspect of the similarity of the process (from the discussion about digitization process, see #23).
- 3. will write the guidelines about modelling states (see #44).
- 4. will circulate the revised scope note of E54 (from the discussion about dimension, see #34).
- 5. will add an example to E7 about the name use (from the discussion about name use, see #37).
- 6. will write an FAQ about the use of the name (from the discussion about name use, see #37).
- 11. will elaborate a contemporary example for Publication Work and Publication Expression.

MN:

- 1. will produce a list of inherited properties of FRBRoo and CRM in RDFS (from the discussion of FRBRoo see # 18).

PR:

- 1. will investigate the possibility of having a meeting somewhere in USA (from the discussion of how we have to proceed see #26g).

RS:

- 1. will examine semi-automatic clustering methods for the transformation (from the discussion about FRBR core, see #21).
- 2. will write an addition to the introduction of FRBRoo about scientific works (from the discussion on scientific works, see #25).
- 3. will elaborate an historic example for Publication Work and Publication Expression (see #50).

TA:

- 1. will make the simplifications in the graphs of FRBR core (from the discussion about FRBR core, see #21).

# Appendix

## *Martin's proposal about FRBR Core*

### **FRBRoo Core (1)**

*First proposal includes Work:*

Work. is composed of: Work  
 Work. continues or complements: Work  
 Work. derives: Work.  
 Work: reflects about: Work  
 Work: augments: Work = shortcut of incorporates

I generalize Expression Creation by a new class:

Externalization Event  
 realizes: Work,  
 incorporates: Expression,  
 is memorized in: Expression.

Expression Creation IsA Externalization Event  
 Performance IsA Externalization Event

Expression Creation: creates = IsA is memorized in  
 Performance : recording = IsA is memorized in.

### **FRBRoo Core (2)**

*Second Proposal without Work:*

Externalization Event  
 derives: Expression,  
 continues or complements: Expression  
 reflects about: Entity  
 incorporates: Expression,  
 is memorized in : Expression.

Expression Creation IsA Externalization Event  
 Performance IsA Externalization Event

Expression Creation: creates = IsA is memorized in  
 Performance : recording = IsA is memorized in.

# 17th joined meeting of the CIDOC CRM SIG and ISO/TC46/SC4/WG9 and 12th FRBR - CIDOC CRM Harmonization

12th - 15th of May 2008

Heraklion - Crete

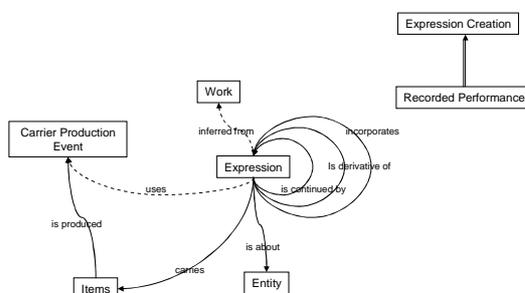
## Participants:

Chryssoula Bekiari (ICS-FORTH, Greece) [CB], Patrick Le Boeuf (National Library of France) [PLB], Martin Doerr (ICS-FORTH, Greece) [MD], Stephen Stead (Pavetime, UK), Mika Nyman (Synapse Computing Oy, Finland) [MN], Richard Smiraglia (Long Island University, USA) [RS], Siegfried Krause (Germanisches Nationalmuseum) [SK], Christian Emil Ore (University of Oslo, Norway) [CEO], Guenther Goerz ( Universität Erlangen, Germany) [GG], Lina Boudouri (Ionion University, Greece) [LB], Vladimir Ivanov (Kazan State University, Russia), Ari Häyriinen (University of Jyväskylä, Finland), Michele Pasin (Open University, UK).

## Minutes

### About FRBRoo

1. An example is added to F26 Recording, examples of F21 Recording Work are changed, and two examples are added to R13 (see text in the appendix A)
2. Following the decision that the substance of F33 Reproduction Event is the reproduction of any kind of carriers of expressions (not just instances of E84 Information Carrier such as defined in CIDOC CRM), we changed the scope note of F33 and the range of R29. The changed scope note is presented in appendix A.
3. It is proposed to classify the comments of Swedish discussion and from Gordon Dunsire and to put the answers on the web (FAQ). The documents are being attached in the appendix A. The actions that should be taken are marked with red letters. These are (i) to make a remark in the introduction about work in FRBRER and about work in FRBROO (ii) CEO will check if there exists problem with terminology in F2, F3, F4.(iii) The conceptual object cannot be destroyed, just lost. E28 and F6 to be reconsidered and rephrased, (iv) The use of quote marks for titles is inconsistent and ambiguous (double quote marks are also used for terms). We should check the rules. FORTH will do it.
4. Up to middle of July we should prepare a text about FRBRoo ver0.9 to give to Pat Riva for the review meeting PLB and CEO will contribute and Maja will go to the meeting.
5. About FRBR core: It is proposed to simplify the added value chain. Recorded performance is similar to Expression creation event. It was discussed to what degree we can model levels of expression including work expression and manifestation product type. The following schematic is a draft proposal about FRBR core



RS will send examples for the above schema. Martin, Trond and Patrick will work on FRBR schemes, Lina Boudouri will send application profiles

### About CIDOC CRM

6. E54 Dimension (issue 157): We discussed about the notion of true dimension. Every time we measure we produce a different dimension. Dimension has one to many relations to measurement event. Finally we concluded that dimension is a unique result of measurement or an

approximation of quantifiers. Martin made changes to the scope note of E54. We have to review the examples. (See text in the appendix B, section 4.4)

7. Name use: Martin proposed a new example to E7 Activity and changes to the scope note of P16 in order to fulfill the notion of name use. See text in the appendix B, section 4.3)
8. CEO presented the E85 Joining, E86 Leaving, P143-146 (see appendix B, section 4.6)
9. Practical Scope: The practical scope is changed in the text of CRM (see text in the appendix B) and the list of changes in the Practical Scope should be updated on the Web site. The following should be added to the site:

Museumdat  
FRBR  
FRAD  
MIDAS  
Dublin Core Collections Application Profile  
CDWA-Lite  
VRA

And PREMIS, METS, ORE, OAIS should be checked.

10. Discussion about Symbolic Object. Three choices were proposed: (i) to add two new classes E89 Propositional Object, E90 Symbolic Object (ii) to put F1 Work under E73 Information Object and to make the appropriate changes to E73 (iii) to put work under E28 Conceptual Object and to provide a hook for P19, P103. The first choice was accepted. Two new classes were added. (See text in the appendix B). The issue 158 is closed. Also changes to E28 made by Steve. (See text in the appendix B)
11. Final version of amendments for submitting to ISO. We decided to close the amendments to CRM. The CRM SIG will not propose any other changes except the notions of compatibility and type. The final decision about these notions will be taken at the CIDOC 2008 conference. The last version is the 4.2.5 and a final list of amendments will be written.
12. How we make extensions: digital provenance, rights, plans.
13. ISSUE 154. CEO will prepare the examples for curation activity. Then this issue will be closed.
14. Discussion about compatibility. We decided we should address (a) the data structure compatibility (b) the system compatibility and (c) authorization process of compatibility (see text in Section 4.5). Also we decided that when assessing the compatibility the cardinality restraints should be ignored (considering that all the properties are many to many).
15. Registry services: Mika and FORTH will look at that.
16. Next meeting 3 days in London, November 5,6,7 2008
17. João Oliveira proposed, according to the CIDOC CRM document, that "since the intension of the subproperty extends the intension of the superproperty, the most appropriate CIDOC CRM superproperty for *F5 Item.R10 is example of (has example): F3 Manifestation Product Type* should be the *E55 Type. P137: is exemplified by (exemplifies): E1 CRM Entity* instead of *E1 CRM Entity.P2 has type (is type of): E55 Type*, considering that to be an "example" is not a "more restrictive" case of to be a "type". So João proposed to invert the Range with the Domain of R10 and to declare that:

R10 has example (is example of)  
Domain: F3 Manifestation Product Type  
Range: F5 Item  
Subproperty of: P137 is exemplified by (exemplifies)

We discussed the comments and remarks made by João and Vladimir and we noted that this is not the sense of R10 since the notion of "exemplifying" in P137 is that of selecting ONE instance to be a particular good representative. This notion of "exemplifying" is similar to the representative assignment notion in the Annex of the FRBRoo document. Finally we decided to invert P137 and to make P137 isA P2 accepting that "to be an example of something is to have the type of something" (see appendix B).

18. Resolving the issue 156, about measuring the process and the dimension of process we decided to change the range of P39 and instead of E70 Thing to be E1 CRM Entity
19. We had decided to change the scope note of P46 to generalize the notion of components (from issue 160). The new scope note is presented in the appendix B.

20. The name of P35 is changed to be compatible with the already changed inverse name (appendix B)
21. We checked the revised scope note (see minutes of 16<sup>th</sup> meeting) of P139 (issue 146). The revised scope note of P139 is presented in the appendix B.
22. We discussed about how to get import / export from the wiki in order to obtain the parallel display of a text in different languages. Also we agreed that we need to present updated versions of CRM in different languages. TMX (Translation Memory eXchange) was mentioned but no clear decision was made.
23. FORTH will update the TELOS base and create the RDF version.
24. GG presented the implementation of CRM 4.2.4 in OWL. Comments on this implementation are presented in Appendix B. We decided to add a note in the CIDOC site about cardinality constraints in the OWL version. This note should inform the users to remove the cardinality constraints if they want to use this version for information integration.
25. We discussed if we can declare P134 isA P120, P9 isA P117B, P10 falls within P117. Finally, since it is not subsumed that every time “continue” means “occurs before” or “meets in time” we decided to examine if we need generalized properties of ALLEN operators.

## TO DO LIST

1. FRBR
  - a. to make a remark in the introduction about work in FRBRER and about work in FRBROO
  - b. CEO will check if there is any problem with terminology in F2, F3, F4. (Gordon Dunsire’s first comment)
  - c. F6 to be reconsidered and rephrased since the conceptual object cannot be destroyed, just lost. (The scope note of E28 is changed in the meeting).
  - d. The use of quote marks for titles is inconsistent and ambiguous (double quote marks are also used for terms) (FORTH will do it).
  - e. A text will be prepared by PLB and CEO about FRBRoo ver0.9 for the FRBR review meeting.
  - f. To provide a key example about the use of FRBR (from Anders Cato text).
  - g. RS will answer Cato’s question about “How perceivable is it that students at library schools will be able to take in this model? Have you tested the model on students? We fear that it might be too complex for a student at an average level to grasp.”
2. About FRBR CORE
  - a. RS will send examples following the draft proposal of FRBR core.
  - b. MD, Trond and PLB will work on FRBR core schemes.
  - c. LB will send application profiles.
3. About CIDOC CRM
  - a. Update the text in the site about Practical Scope (FORTH).
  - b. Final version of amendments (FORTH).
  - c. CEO will prepare the examples for curation activity.
  - d. Registry services: Mika and FORTH will look at that.
  - e. FORTH will update TELOS base and will create the RDF version.
  - f. To add a new issue about if we need a superclass for properties of ALLEN operators (FORTH).
  - g. PLB will find out of the procedures that the ISO organization follows about testing the compatibility.
  - h. To send by email the example for P5 and to vote by internet (FORTH).
  - i. To make an issue about types and vote in the internet.

## APPENDIX A

The appendix A contains the changes in FRBRoo. The changed text is marked with green letters.

Examples of F21, F26, R13

### F21 Recording Work

Subclass of: [F16](#) Container Work

Superclass of:

Scope note: This class comprises works that conceptualise the capturing of features of perdurants. The characteristics of the manifestation of a recording work are those of the product of the capture process. The characteristics of any other works recorded are distinct from those of the recording work itself.

Examples: [The concept of recording the rescue/recovery of the Swedish 17<sup>th</sup> century warship Vasa April 24. 1961](#)

[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](#)

[The concept of recording the Live Aid concerts July 13, 1985, in London, Philadelphia, Sydney and Moscow](#)

### F26 Recording

Subclass of: [F22](#) Self-Contained Expression

Superclass of:

Scope note: This class comprises expressions which are created in instances of F29 Recording Event. A recording is intended to convey (and preserve) the content of one or more events.

Examples: [The set of signs that make up the third alternate take of the musical work titled “Blue Hawaii” as performed by Elvis Presley in Hollywood, Calif., Radio Recorders, on March 22nd, 1961](#)

[The encoded content on the colour film taken by Swedish Television of the rescue/recovery of Swedish 17<sup>th</sup> century warship Vasa April 24. 1961.](#)

Properties:

### R13 is realised in (realises)

Domain: [F21](#) Recording Work

Range: [F26](#) Recording

Superproperty of:

Subproperty of: [F1](#) Work. [R3](#) is realised in (realises): [F22](#) Self-contained Expression

Quantification: (0:n,0:1)

Scope note: This property associates an instance of F21 Recording Work with an instance of F26 Recording realising the instance of F21 Recording work. This is a shortcut of the more

elaborated path through R22 *was realised through*, F29 Recording Event and R21 *created*, which should be used when information about the recording event is available.

#### Examples:

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 documenting the Live Aid concerts July 13, 1985, London, Philadelphia, Sydney and Moscow (F21) *R13 is realised in* the set of signs that make up the content of the four DVD disk edition of the Live Aid concert, realised by WEA November 16, 2004 (F26)

The concept of recording the rescue/recovery of the Swedish 17<sup>th</sup> century warship Vasa April 24. 1961 is realised in the encoded content on the colour film stored in the Vasa Museum in Stockholm and DVDs on sale in the Museum.

#### F33 issue

[Issue: According to what was said in Nuremberg, examples #2, 3, and 4 should be dropped, as neither microfilms nor digitisations are regarded as “reproductions” in FRBR<sub>OO</sub>... although they are precisely what librarians mean by “reproduction”! As a rule, we don’t catalogue photocopies, or very exceptionally (the example for R30 produced (was produced by) and R31 is reproduction of (has reproduction) is real). Is F33 Reproduction Event really needed, then? In FRBR<sub>ER</sub>, a facsimile edition is regarded as a reproduction; if F33 is kept, I should add an example for such a case]

The resulted text for R33 follows:

### **F33 Reproduction Event**

Subclass of: [E12 Production](#)

Scope note: This class comprises activities that consist in making copies by a mechanical process of an instance of [E24 Physical Man-Made Thing](#), in order to preserve the expression carried by it. A Reproduction Event results in instances of [E84 Information Carrier](#) coming into existence. *Since one is produced from the other, and will exhibit different features, copies and original are not regarded as siblings.*

This class makes it possible to account for the legal distinction between private copying for the purpose of “fair use,” and mass production for the purpose of dissemination.

[F32 Carrier Production Event](#) is a process characterized by the intention to produce physical items of a publication. It will employ the typical production means foreseen for this publication from the beginning. The Reproduction Event is a process characterized by a method suited to transfer an expression from an existing item or other information carrier to a new information carrier. In some cases, a publisher may choose to use instance of [F33 Reproduction Event](#) for publication. In this case, the copies, but not the original, may be regarded as instances of [F5 Item](#). It is the existence of an explicit production plan that makes the difference. As a consequence, [F33 Reproduction Event](#) and [F32 Carrier Production Event](#) are not declared as *disjoint*, which makes it possible to account for such situations that could be regarded as instances of both Production Event and Reproduction Event.

Examples: My photocopying now for my own private use an exemplar of the article titled “Federal Court’s Ruling Against Photocopying Chain Will Not Destroy ‘Fair Use’” by Kenneth D. Crews, issued in “Chronicle of higher education”, 17 April 1991, A48

The BnF’s producing in 1997 the microfilm identified by call number “Microfilm M-12169” of the exemplar identified by shelf mark “Res 8 P 10” of Amerigo Vespucci’s “Mundus novus” published in Paris ca. 1503-1504

The BnF’s reproducing in 2001 the exemplar identified by call number “NC His Master’s Voice HC 20” of a 78 rpm phonogram released by Gramophone in 1932, as part of the CD identified by call number “SDCR 2120”

The BnF’s making in 2003 a digitisation, identified by call number “IFN 7701015”, of the collection of drawings (held by the BnF) that were made by Étienne-Louis Boullée in 1784 for his project of a “Newton Cenotaph”

Properties:

[R29](#) reproduced (was reproduced by): [E24 Physical Man-Made Thing](#)

[R30](#) produced (was produced by): [E84](#) Information Carrier

# 20th Jointed meeting of the CIDOC CRM SIG and ISO/TC46/SC4/WG9 and 14th FRBR - CIDOC CRM Harmonization meeting

20th – 22nd of May 2009  
Imperial College – London

## Participants:

Chryssoula Bekiari (ICS-FORTH, Greece) [CB], Patrick Le Boeuf (National Library of France) [PLB], Martin Doerr (ICS-FORTH, Greece) [MD], Stephen Stead (Pavetime, UK), Philip Brown (UEA), Antony Mantosh (BRIGHTON), David Morni (BRIGHTON), Karina Rodriguez (University of Brighton), Adrian Cooper (Intelligent Heritage), Mika Nyman (Synapse Computing Oy, Finland) [MN], Christian Emil Ore (University of Oslo, Norway) [CEO], Lina Boudouri (Ionion University, Greece) [LB], Christina Vona (UCL), Prodromos Tsiavos (LSE), Lynne Cahill (University of Brighton), Roger Evans (University of Brighton), Joe Padfield (National Gallery), Trond Aalberg (BIBSYS, Norway), Maja Žumer (National and University Library of Slovenia), Dolores Iorizzo (Imperial College, United Kingdom), Øyvind Eide (University of Oslo).

1. Licensing-Copyright : Presentation by Prodromos Tsiavos.
  - a. We decided that FRBRoo should be validated against flows of rights.
  - b. Also we should find someone from IFLA as a formal liaison for initiating a common creative license for FRBRoo.
  - c. We should put the license notice on the web.
2. Discussion about FRBR compatible forms. We agreed on:
  - a. The most important relationships are:
    - i. Continuation
    - ii. Derivation
    - iii. Incorporation.
  - b. Dolores will make an example of versions of Bible in CRM and FRBR.
3. Discussion about FRBR CORE. We decided to put priorities for the definition of FRBR\_Core. These are:
  - introduce FRBR\_Core as a way to exchange bibliographic records with only a minimal extension to MARC
    - This would make it attractive to libraries, and would be a way to increase the use of FRBR.
  - Relationships are the most important thing.
    - First priority: Aggregation of expressions primarily serves access to “functionally equivalent forms” according to preferences, such as: language, illustrations, particular translator,...
    - Second priority: Information provenance (trust) and rights.
    - Third priority: Study history of creation and derivation.
    - Containment relation of expressions: where to find it.
    - Nested structure of the derivation network.
    - Sibling derivatives are identified via derivation from a hypothetical expression/work which is “represented” by one sibling in the cluster.
    - Need to elaborate merging of derivation graphs (first priority!).
  - Scenarios:

- Europeana (*Integrated access system*)
- TEL (intend to FRBRize).

Actions: Find examples by begin of July, and show simple linkage.

# 21th Jointed meeting of the CIDOC CRM SIG and ISO/TC46/SC4/WG9 and 15th FRBR - CIDOC CRM Harmonization meeting

27th, 29th of January 2010  
National Gallery, Helsinki

## Participants:

Chryssoula Bekiari (ICS-FORTH, GR) [CB], Patrick Le Boeuf (National Library of France,FR) [PLB], Martin Doerr (ICS-FORTH, GR) [MD], Stephen Stead (Pavetime, UK)[SS], Mika Nyman (Synapse Computing Oy, FI) [MN], Christian Emil Ore (University of Oslo, NO) [CEO], Gordon Dunsire (Univ. of Strathclyde, UK), Frank Förster (Christian-Albrechts-Universität zu Kiel, DE), Jane Stevenson (Archives Hub, Mimas, UK), Eeva Murtomaa (National Library of Finland, FI), Christos Papatheodorou (Ionian University, GR), Pat Riva (Bibliothèque at Archives nationales du Québec, CA), Jessica Parland-von Essen (Society of Swedish Literature in Finland, FI), Bill Stocking (British Library, UK), Osmo Palonen (Mikkeli University of Applied Sciences, FI), Juha Inkari (Aimari Oy, FI), Päivi Pekkarinen (Helsinki University Library, FI), Claire Sibille (ICA/Archives, FR)

1. Licensing-Copyright : Changes proposed by MD are
  - a. "paternity rights" instead of "paternal rights".
  - b. instead of laws of France we apply "most applicable international laws and treaties".
 These changes have been accepted. Once ICOM has transformed the SIGs into legal bodies then the "CIDOC CRM Contributor License Agreement" should be sent to all members to sign.
2. Clean up the example of P14: 'was' should be deleted
3. The issue 171 about the name of P44 was accepted and the name of the property 'P44 has condition (condition of)' changed according to the rule to 'P44 has condition (is condition of)'
4. The issue 169 about changing the name of the inverse label of P65 was dropped. The SIG noticed that the issue denotes a confusion with digital representations of visual items and changed the example in P65 into: 'My T-Shirt (E22) shows visual item Mona Lisa (E38)'
5. The SIG changed the current release number to 5.0.2
6. Issue 166: The SIG decided that it is not yet mature and ready to be discussed.
7. Issue 164: Implementation of time primitive in RDF/OWL. SIG discussed about how to model primitive values in RDFS version and proposed (1) not to model the Primitive Values as classes, because this causes another indirection that hits heavily on query performance (2) to have a warning or explanatory text written about this. Mika will draft it.
8. Issue 165: The SIG changed the scope note of E81 Transformation for a better formulation of cardinality.
9. Issue 166: The SIG decided that it is not yet mature and ready to be discussed.
10. The SIG reviewed the text of the proposed changes by PLB and decided the following:
  - a. The structural issues referred to in this document are to be posted in the "work progress" in the CIDOC-CRM site as open issues except for the issues referring to P1 and P3. The issue about P3 called for a clarification that was given during the meeting. The comment on the possible usefulness of declaring for P1 *is identified by (identifies)* a property P1.1 *has type:* E55 Type, on the same pattern as P102 *has title (is title of)* P102.1 *has type:* E55 Type, was that if this property may add semantics to the type of the identification, it is not clear yet whether this is needed.
  - b. The declaration of property "P3.1 has type" of P3 property in the definition of E1 CRM Entity is to be corrected.
  - c. The example provided for E5 Event: "the destruction of Lisbon by earthquake in 1755" should be changed, since Lisbon continued to exist and be identified as Lisbon after the earthquake, while the scope note for E6 reads: "when the initial identity of the changed instance of E18 Physical Thing is preserved, the event should be documented as E11 Modification". The destruction of Herculaneum was suggested as a possible better example [*my personal comment, off the record: the site of Herculaneum still exists and is*

still identified as *Herculaneum nowadays*, so it is not an example for destruction either; possibly better examples could be: the explosion of supernova Cassiopeia A; or the destruction of most of Carel Fabritius's paintings caused by the explosion of the Delft gunpowder magazine on October 12, 1654; or the intentional destruction by Edgard Varèse of the manuscript score of his symphonic poem entitled 'Bourgogne' (which is both an E6 Destruction and an E7 Activity)]. Also, for the same reason the example "the shooting of the last wolf [...]" should be removed from E6 Destruction.

- d. The second and third examples of E12 Production were rephrased, because the term "edition" is ambiguous, it makes one think of E73 Information Object rather than E7 Activity.
- e. The "P" from the second example for E20, "Tut-Ankh-AmunP", was removed.
- f. The 4<sup>th</sup> example for E29 Design or Procedure was reworded for more accuracy. The text of the example was modified. Also SIG proposed to add an example specific to museum practice about E29 Design or Procedure.
- g. The text in parenthesis of the scope note E35 Title was rephrased for better understanding. The rephrasing was from: (the latter are common nouns and are modelled in the CRM as instances of E55 Type) to: (the latter are common nouns that stand for instances of E55 Type). Also CEO will further elaborate the scope note of E35 Title.
- h. Property 'P139.1 *has type*: E55 Type' of the property P139 *has alternative form (is alternative form of)* E41 Appellation was added where it was missing.
- i. Spelling of the terms "postquem" and "antequem" was fixed in the scope note text of E63 Beginning of Existence.
- j. The 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> examples of E70 Thing were modified for better understanding
- k. The singulars and plurals in the first sentence in the scope note of E67 Birth were corrected.
- l. Property 'P107.1 *kind of member*: E55 Type' of property P107 *has current or former member (is current or former member of)* of E74 Group was added where it was due.
- m. In the scope note of P107 *has current or former member (is current or former member)* the phrase "he or she" was removed in order not to equate E39 Actor with E21 Person.
- n. The scope note of E75 Conceptual Object Appellation was reworded in order to avoid the confusion with the class E42 Identifier and correct the letter in parenthesis at the end of the second example from (E) to (F).
- o. One of the two closing brackets in property P136 in the definition of E83 Type Creation was removed.
- p. The period between "Michael" and "Foslie" in "Michael. Foslie" in the definition of E87 Curation Activity and in the definition of P109 *has current or former curator* was removed.
- q. The example for P4 *has time-span (is time-span of)* was rephrased for better understanding since it was making use of P81 property without stating it explicitly; also, "11 February 1945" looks more like an instance of E50 Date than like an instance of E61 Time Primitive.
- r. The example of P5 *consists of (forms part of)* was rephrased because it did not follow the usual pattern for property examples.
- s. The OR between the two examples for P11 *had participant (participated in)* was removed.
- t. It was decided that the names of the following properties would not be changed:
  - i. P16 used specific object (was used for)
  - ii. P25 moved (moved by)
  - iii. P31 has modified (was modified by)
  - iv. P33 used specific technique (was used by)
  - v. P35 has identified (was identified by)
  - vi. P37 assigned (was assigned by)
  - vii. P38 deassigned (was deassigned by)
  - viii. P39 measured (was measured by)
  - ix. P41 classified (was classified by)

- x. P42 assigned (was assigned by)
- xi. P44 has condition (condition of)
- xii. P92 brought into existence (was brought into existence by)
- xiii. P93 took out of existence (was taken out of existence by)
- xiv. P94 has created (was created by)
- xv. P95 has formed (was formed by)
- xvi. P99 dissolved (was dissolved by)
- xvii. P108 has produced (was produced by)
- xviii. P110 augmented (was augmented by)
- xix. P111 added (was added by)
- xx. P112 diminished (was diminished by)
- xxi. P113 removed (was removed by)
- xxii. P124 transformed (was transformed by)
- u. Italics were introduced in the following phrases:
  - i. “*mode of use*” in the second example for P16 *used specific object (was used for)*.
  - ii. “*transferred custody of*” in the example for P30 *transferred custody of (custody transferred through)*.
- v. The spelling of “Tutenkhamun” in P26 *moved to (was destination of)* and P27 *moved from (was origin of)* was harmonized with all other occurrences of that name in the document.
- w. The codes P90 and P91 were introduced in the examples for P43, P83, and P84.
- x. All occurrences of property names in the scope note and examples for P62 *depicts (is depicted by)* were reset in italics.
- y. The first example in P62 was reworded for better understanding.
- z. The domain of P129 in P67 was corrected and the missing range of the subproperty of P52 in the definition of P105 was added.
- aa. In the parenthesis inside the scope note of P81, P82 “it’s” was corrected into “its”.
- bb. Double quotes (“”) were added to all appellations in the examples of the entities and properties.

The SIG discussed the points that PLB made on FRBRoo ver. 1.0. The outcome of this discussion follows:

11. There was a problem with F21 declared as a subclass of F16 Container Work because individual instances of F21 may or may not be related to expressions of other works. The SIG decided that F21 isn’t subclass of F16. F21 is subclass of F1. In the case where the recorded perdurant expresses some Work, the respective instance of F21 is also an F16 Container Work. Also additional explanation was added to the scope note of F21.
12. In the scope note of F26 Recording, it was not clear if the actual recordings are not just the result of instances of F29 Recording Event, but also of the whole process of post-production. Or is the notion of post-production implicitly included in the notion of F29 Recording Event? The SIG decided to add a sentence in the scope note of F29 declaring that these events may include postproduction.
13. R4 had been declared incorrectly as a subproperty of *R41 has representative manifestation product type (is representative manifestation product type for)*. It is actually a superproperty of R41, and in CIDOC CRM it corresponds to a path through P128B and P2. The necessary changes were made to R4 and R41.
14. SIG continued with editorial issues submitted by PLB:
  - a. In F1 Work, the R2.1 property was added.
  - b. In F2 the 4<sup>th</sup> example was rephrased for better understanding.
  - c. Examples were added to F10 and the typo was corrected in F12.
  - d. In F23 the 3<sup>rd</sup> and 4<sup>th</sup> examples were removed.
  - e. In F24 the whole scope note was rephrased.
  - f. In R1, the example 1 is actually inaccurate, as the action of “H.—the story of Heathcliff” does not take place after the end of “Wuthering Heights”, but right in the middle of it. The SIG decided to accept the proposal of PLB for replacing this example.

- g. In R8, R10, R11, R20, R26 the CRM Superproperty was added.
- h. It was decided that the names of the following properties would not be changed:
  - i. R16 initiated (was initiated by)
  - ii. R17 created (was created by)
  - iii. R18 created (was created by)
  - iv. R26 produced things of type (was produced by)
  - v. R27 used as source material (was used by)
  - vi. R28 produced (was produced by)
  - vii. R29 reproduced (was reproduced by)
  - viii. R45 assigned to (was assigned by)
  - ix. R46 assigned (was assigned by)
  - x. R48 assigned to (was assigned by)
  - xi. R49 assigned (was assigned by)
  - xii. R50 assigned to (was assigned by)
  - xiii. R51 assigned (was assigned by)
  - xiv. R53 assigned (was assigned by)

## 22nd Jointed meeting of the CIDOC CRM SIG and ISO/TC46/SC4/WG9 and 16th FRBR - CIDOC CRM Harmonization meeting

20<sup>th</sup>- 22<sup>nd</sup> of December 2010  
Germanisches Nationalmuseum, Nuremberg

### *Participants:*

Chryssoula Bekiari (ICS-FORTH, GR), Patrick Le Boeuf (National Library of France, FR), Martin Doerr (ICS-FORTH, GR), Stephen Stead (Pavetime, UK), Mika Nyman (Synapse Computing Oy, FI), Christian Emil Ore (University of Oslo, NO), Stefan Gradmann (Humboldt University of Berlin, DE), Frank Förster (Christian-Albrechts-Universität zu Kiel, DE), Lina Boudouri (Ionian University, GR), Siegfried Krause (Germanisches Nationalmuseum), Detlev Balzer, Jutta Lindenthal (IID Potsdam, DE), Mark Fichtner (ZFMK, DE), Øyvind Eide (King's College London, UK), Günther Görz (Universität Erlangen, Germany), Gerald Hiebel (University of Innsbruck, AT), Pat Riva (Bibliothèque et Archives nationales du Québec, CA), Maja Žumer (National and University Library, SI).

### *Monday 20/12/2010, afternoon session*

After the presentations of FRAD and FRSAD, the harmonization procedure of FRSAD launched. We discussed and mapped the entities of FRSAD and FRAD with the CIDOC CRM and FRBRoo with the following order.

#### *FRSAD entities*

FRSAD:aboutness is identical to P129

FRSAD:Work = F1 Work

FRSAD:Thema

A propositional object that can be used to generalise the content of a Work in the sense of a subject. (E89 Propositional Object, too specific)

\*\*\*\*E1 Entity (best choice as there are no restrictions on themas)

FRSAD:Nomen = E41 Appellation

Relationship "has appellation" is: E1 CRM Entity P1 is identified by E41 Appellation

#### **4.1 Attributes of Thema**

**4.1.1 Type of thema** P2 has type E55 Type

**4.1.2 Scope note** P3 has note

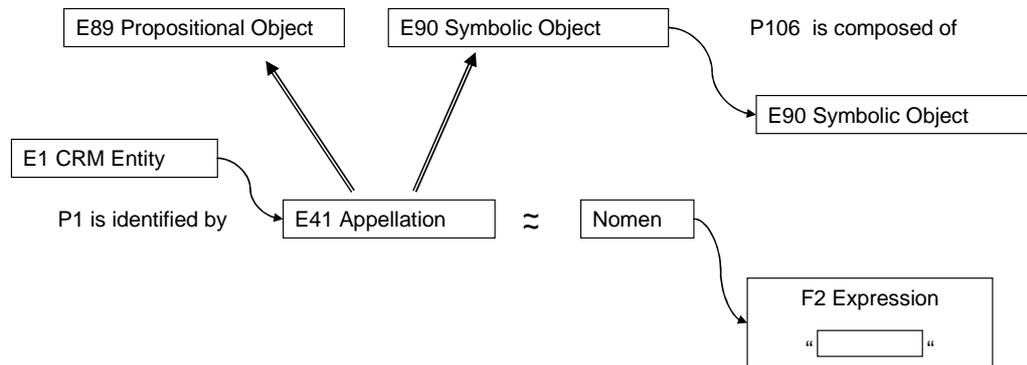
### *Tuesday 21/12/2010*

"Aboutness" (has as subject) relationship is identical to P129 is about (is subject of)

#### **4.2 Attributes of nomen**

**4.2.1 Type of nomen** = P2 Appellation has type

**4.2.2 Scheme**



The schemes are Works, so the scheme attribute is a relationship to an expression of the Work (scheme) that the nomen is a part of. P106 is composed of  
 eg. the nomen is drawn from Dewey 21st ed.  
 controlled vocabularies as a subclass of Works  
 (Controlled vocabularies, even if concept based, still function in terms of nomen for the concepts themselves)

Regard the set of expressions appearing under a namespace as a scheme.

This interpretation refers to taking the nomen from a controlled vocabulary rather than constructing it according to the instructions in a particular set of rules.

Clarify whether time encoding is a controlled vocabulary or not.

Distinction between lexical and syntactic schemes.

***Issue:*** Currently E90 Symbolic object does not qualify as range of P148

Alternative mapping, use P106 is composed of

The scheme may also be an expression of some work. The particular symbolic form chosen as a nomen is attested in that expression.

P106 is composed of

For the time being we assume that the nomen is uniquely associated with one scheme. The same string may appear in another scheme, but there is no evidence to equate them.

#### 4.2.3 Reference source of nomen

The reference source is an expression of some work. The particular symbolic form chosen as a nomen is attested in that expression.

This relationship denotes that the scheme to which this nomen belongs, states that it took the nomen from another source.

R14 incorporates

P106 is composed of

**4.2.4 Representation** = P2 has type E55 Type

**4.2.5 Language** = E33 Linguistic object P72 has language E56 Language

**4.2.6 Script** = P2 has type E55 Type

**4.2.7 Script conversion** = The script conversion used in the current authority document

**4.2.8 Form** = P2 has type E55 Type

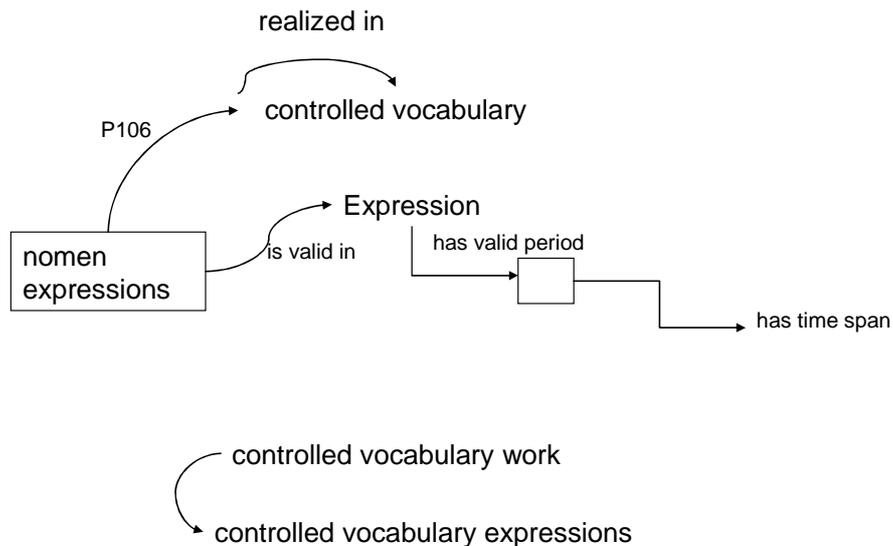
**4.2.9 Time validity**

**NB:** This is not about usage in natural language, but within the subject scheme (or classification system)  
 Specialises the scheme attribute, by specifying which expression of the scheme used this nomen.  
 Distinguishes currently valid terms from terms that are obsolete in that vocabulary.

A link to a period characterised the validity of all the expressions that declared this term as valid  
 Need a new subclass of Work: Controlled vocabulary work, and a new subclass of expression: Controlled vocabulary expression

new property: has validity E4 Period. and P4 has Time-span (is time-span of) E52 Time-span

short-cut: Nomen Is valid in Time-span



the identity of the Nomen across different expressions of the same authority document

This construct assumes that the nomen has an identity across different expressions of the same authority document work.

#### **4.2.10 Audience**

An activity might be hidden in this? However, there is no checking of actual usage of the nomen by that community. Note that the entire authority file may be flagged for a value of this attribute (such as suitable for use by children)

It is an intended activity.

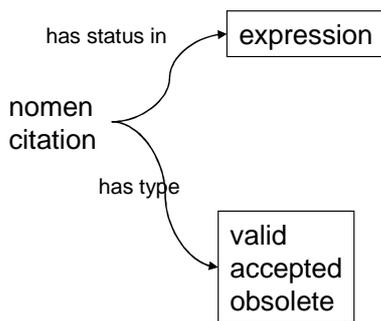
Issue 147: a similar situation, decided that there was no need for a specific new class for name use.

This relationship describes that the creators of the authority document believe that this form of nomen is the most suitable of all the alternatives for this particular community or audience. There is no assumption made about actual use by that group.

characterised as a Design or procedure

#### **4.2.11 Status**

Nomen citation Has status (has type: proposed, accepted or obsolete) Expression



## 5. Relationships

### section 5.3 Thema-Thema relationships

#### 5.3.1 Hierarchical

**5.3.1.1** Generic IsA, P127 (SKOS ...)

**5.3.1.2** Whole-part = a series of CRM properties relating to inclusion

**5.3.1.3** Instance = P2 has type, Instance of

**5.3.1.4** Polyhierarchical

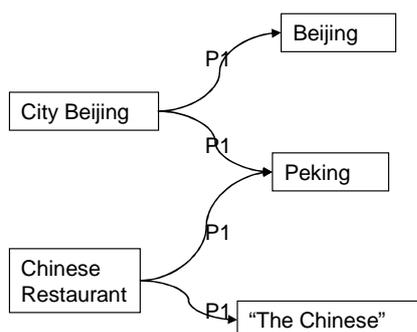
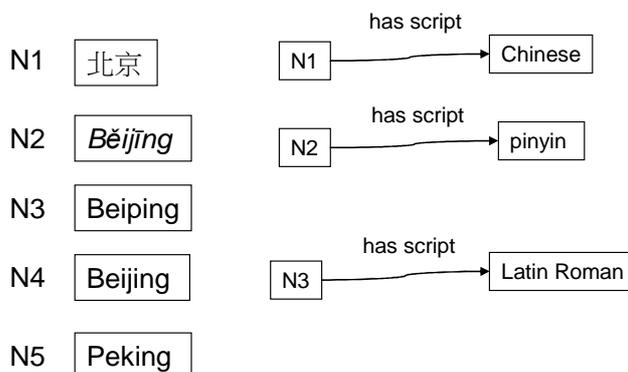
This a statement about the cardinality of these relationships in this section, and not a separate relationship in itself.

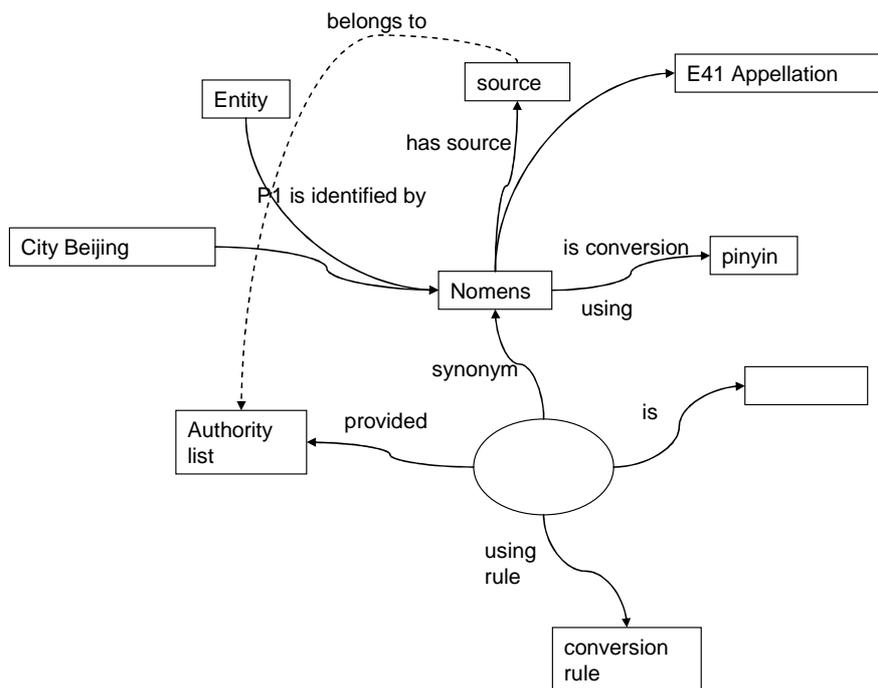
#### 5.3.2 Association

Any other "related to" relationship. No model necessary

### 5.4 Nomen-nomen relationships

We discuss the following diagram





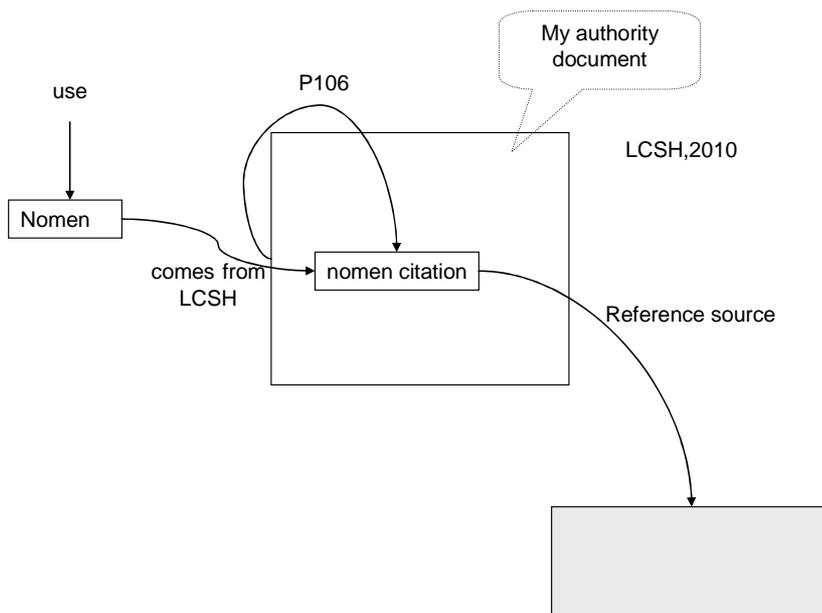
**5.4.1** equivalence

This is the consequence of the two nomens both relating to the same thema, it is not directly between the nomens. Not transitive, this is not a mathematical equivalence relationship. Only works if the thema is kept constant.

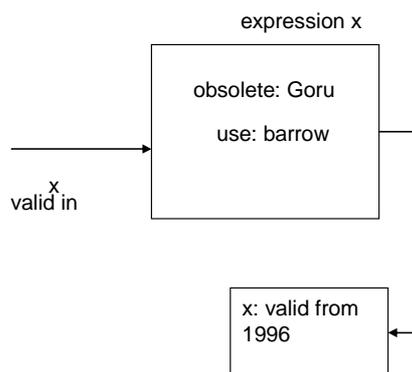
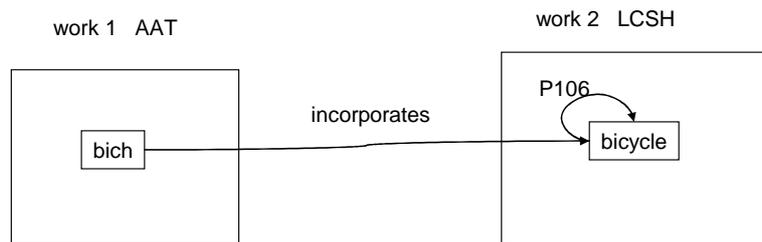
Model it through the thema.

**5.4.2** Whole-part =P106 has component

We discuss the following figure



Other alternative



Three notions

- (1) the use in real life
- (2) The authority document dictionary
- (3) A more general case where two authority documents synchronized

*FRAD oo*

## Entities

### 3.4 Person (modified from FRBR)

FRBR:Person = E21 Person

FRAD:Person = union of E21 and FRAD:Persona and FRAD:Literary character

FRAD:Persona = FRAD:'Identities'

Need a class for Literary character, to form part of FRAD:Person, this class may be exempted from constraints followed by instances of E21 Persons. It is a Conceptual Object.

Is it a E89 Propositional Object. Needs a property to link to the sources of the character's essential properties.

### Family (not in FRBR)

In CRM families have so far been considered instances of E74 Group.

However, the FRAD definition of Family includes families that do not fit the definition of E74 Group. An E74 must act collectively, and family lineages do not necessarily do so.

FRAD borrows this concept from archival records produced over time by a family lineage.

Tentative scope note: (a subclass of E74 Group)

Two or more persons who present themselves as a family. Justified by being related by birth, marriage, adoption, civil union, similar legal status, or other relationships,

**\*\*Question:** Is "person" in the definition of family the usual real-world definition (E21) or the FRAD:Person. If the latter, then we need a class for fictitious families?

If all 3 group 2 entities include fictitious ones, we would have fictitious actors.

### Corporate body (CB)

Once fictitious corporate bodies are included, this is broader than F11 Corporate Body

Need a class for fictitious corporate bodies. Then FRAD:CB = F11 CB + Fictitious CB

**\*\*CB** does not include ethnic groups (other than formally organised ones which have a government, as in First Nations). Ethnic groups are included in E74 Group

*Note:* foresee a fictitious actor and then later decide whether we need subclasses of it.

In CRM there are non-expressions which are Information objects.

In FRAD the entities Work, Expression, Manifestation, Item take the FRBR definitions Concept, Object, Event, Place : expansion was deemed out of scope of FRAD

**\*\*FRAD** does not add fictitious places.

FRAD: Name = E41 Appellation = F12 Name

Relationship to FRSAD:Nomen: Nomen should be broader. We will come back once we look at properties

FRAD: Identifier = ? E42 = F13 Identifier

FRAD:CAP, is it a subclass of FRAD:Identifier or not? We declare it as such, for the present. We assume that FRAD does not discuss subclasses

*Wednesday 22/12/2010, morning session*

FRAD: Rules = a subclass of F43 Identifier Rule, which applies to any identifier type, it is a subclass of E29 Design or Procedure

FRAD:Agency = F44 Bibliographic Agency a subclass of F11 CB

### **Structural relationships**

Diagram does not specify (but that it the intent) that Agency creates/modifies CAP using a specific set of Rules. The diagram shows this as two separate paths.

### **Attributes**

#### **4.1 Person**

Dates: birth and death already modelled in CRM, dates of holding an office already modeled in CRM

dates associated with a person's professional activity, (floruit (Latin)) English, flourished dates (fl.)

This concept should be modelled, as a subclass of E7 Activity (which can include non-targetted activities)

**\*\*Need to collect definitions from Library Archival and museum practice to write a scope note inclusive of all.**

Title of person: mapped with E55 Type, holding of an office is modelled with a Group

Gender: use E55 Type

Place of Birth , Death, already modelled in CRM

Country (associated with the person: not just citizenship, residence) could be country of floruit, but also the subject of their work (as in literature which is in the discourse of their original country, not where they may be living and working).

Model the different ways of making this determination

Place of residence already in CRM P74 has current or former residence

Affiliation: Group membership P107 has current or former member

Address: a place name, includes E51 contact points, E45 Address. These are E44 place Appellations, such as of the place of residence. Path: P107 from actor to place, P87 from place to place name

Language of person: with E55 Type. May be associated with floruit

Field of activity : associated with floruit? May or may not be related to the profession or occupation

Profession/occupation: E55 Type May be associated with floruit

Biography/history: P3 has note. (for the biog/hist text) in detail, each part of it is P12 was present at E5 Event

Other information: mapped in FRBRer, F12 Name R8 consist of F12 Name

### **Family :**

*\*\*Language of family is not in the list of attributes*

Type: E55 Type

Dates: close to the floruit notion, dates of the members, family as a whole

Place: again related to floruit of members.

Field of activity: as for persons, group activity of the family

History of family: P3 has note. (for the hist text) as a whole and its members in detail, each part of it is P12 was present at E5 Event

The floruit notion should be extended to families explicitly to cover these situations (check that it is not incompatible with definitions from archives, etc.)

### **Corporate bodies**

Groups that come from events (meeting, conference, event) sense of how this fits, is it more than the event ? The event creates a product, a work, as in a proceedings or report, which make reference to the "authors" as being a group.

Place associated with CB: see FRBRer mapping: 2 paths, one for place of meeting, another for residence of the CB.

Dates: see FRBRer mapping: 2 paths, one for date of meeting, another for date of formation (or ending) of the CB.

Language of the CB : with E55 Type.

Address: (does not specifically address, the address of place of meeting -- is this implicitly understood, or specifically omitted), a place name, includes E51 contact points, E45 Address. These are E44 place Appellations, such as of the place of residence

Field of activity: again as with Family and Person? but here it is less related to floruit. Fields of activity of a corporate body can change over time, new fields added, previous fields abandoned,

Other controlled vocabularies are used, eg SIC, ICA has standard for functions, AGIFT Australian Govt Interactive Functions thesaurus.

*FONZ Refers to an E7 Activity Type in the sense of the CRM. Check that this is correct,*

History of CB: P3 has note. (for the hist text) in detail, each part of it is P12 was present at E5 Event

Other designation/Information: as in FRBRer mapping, via R8

### **Work:**

We are discussed the new attributes only

Subject of work: =P129 is about, for a textual description P3 has note for genre etc. P2 has type (see also attribute Form of work). It is less problematic than in the e-R definition. FRSAD supercedes as far as the subject relationship is concerned. FRAD supercedes FRSAD with respect to distinctions about identifiers and CAP

Place of origin of the work: is this related to work conception or to the first expression of the work.

Place of origin of a cinematographic work is tied to the place of citizenship of the producer (and not the director)

Complex production processes (such as movie-making), should check the impact on map as Place of the F27 Work conception (for example, oral tradition/anonymous works transcribed and published outside of their originating area) or Place of F28 Expression creation (of the first expression)

History of the work: P3 has note. (for the hist text, in detail, each part of it is P12 was present at E5 Event

*\*\*Examine modeling of title changes of continuing resources.*

## 23rd CIDOC SIG meeting and 17th FRBR-CIDOC CRM Harmonization meeting

May 17th-20th, 2011,  
FORTH, Heraklion, Crete

### *Participants:*

Trond Aalberg (BIBSYS, NO), Chryssoula Bekiari (ICS-FORTH, GR), Patrick Le Boeuf (National Library of France, FR), Martin Doerr (ICS-FORTH, GR), Gordon Dunsire, Øyvind Eide (King's College London, UK), Gerald Hiebel (University of Innsbruck, AT), Athina Kritsotaki (ICS-FORTH, GR), Mika Nyman (Synapse Computing Oy, FI), Christian Emil Ore (University of Oslo, NO), Rea Gaitanou (Ionian University, GR), Siegfried Krause (Germanisches Nationalmuseum), Pat Riva (Bibliothèque et Archives nationales du Québec, CA), Richard Smiraglia (University of Wisconsin Milwaukee, USA), Stephen Stead (Pavetime, UK), Maja Žumer (National and University Library, SI)

### *Tuesday 17/05/2011*

We discussed about FRSAD entities and we decided the following:

Scope of FRSAD/FRBR limited to works that have been externalized.

FRSAD:Work = F1 Work

FRSAD Thema = E1 Entity

Thema is not a class of work (C.Welty ..) (In a sense, with this decision, "Thema" becomes a relationship, rather than an entity in its own right...)

FRSAD has as subject /is subject of

Here we should refer to the distinction between a subject as a propositional object summarizing in a way the content of a work or part of it and the reference to any entity without specifying a specific way in which the entity appears in the work. We see two aspects:

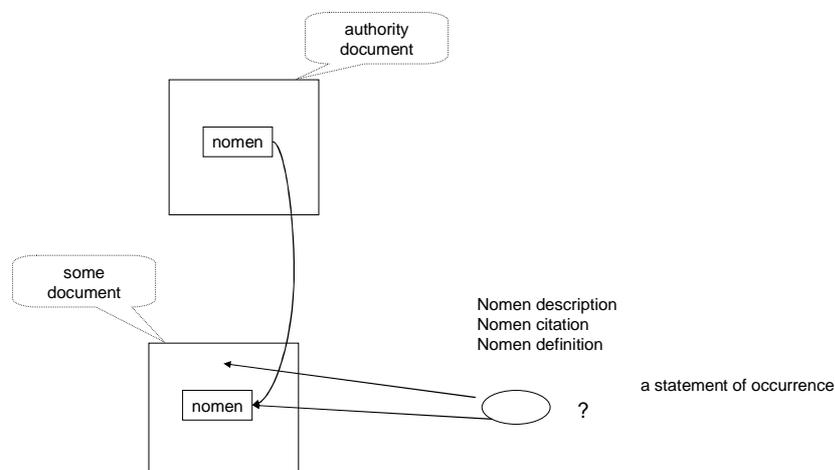
- work as a whole, part of it, aspect of it
- subject as proposition or as "any" reference to something without specifying sorts of relationships to it in the work.

FRSAD:Nomen = E41 Appellation.

(Here we talked about the expressions of a Nomen in any text and we discuss why we need nomen expressions)

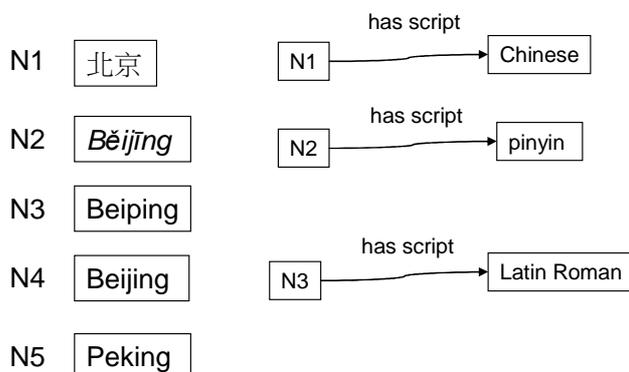
No different interpretations found.... (propose reference to "nomen" in CRM, propose to add to E41 an example of a non-Latin symbol, a Chinese character 'peace'?)

Note, that the identity of a Nomen is defined on the base of the symbols it contains, on a script level if applicable, and not on font or encoding level. Spelling variants are regarded as different nomina.



(This entry in an authority document which makes the connection is an entity of its own right)

Finally, commented the following slide we decided that the following 5 Nomen of Peking are appellations of the same thema according to FRSAD



Then we declare as potential entities the following:

**FRSAD:Scheme = KOS , FRAD “authority file”  $\supset$  E32 Authority Document.**

The scheme in which the nomen is established, including value encoding schemes (subject heading lists, thesauri, classification systems, name authority lists, etc.) and syntax encoding schemes (standards for encoding dates, etc.).

Propose: Change example “Webster...” in E32 Authority Document.

**Fxx KOS (equivalent to redefined E32), IsA Expression**

**Fxx Nomen Use Statement:**

Relating a Thema in a KOS with a particular Nomen. This Relation may be warranted by some source. Either a subclass of E13 Attribute Assignment or a reification (named graph?)....What if the warrant comes after the statement.?

Or use the property as Domain of Rxx is warranted by..

**Entry in an authority document:**

relating signifier, signified and signifier use

Generalize E32 Authority Document to include any KOS.

**FRSADoo: Fxx Knowledge Organisation System** (not cataloguing rules) . The fact that a KOS may contain cataloguing rules does not make cataloguing rules a KOS....

Open issue: to which degree identifiers created by rule are “taking from the KOS”.

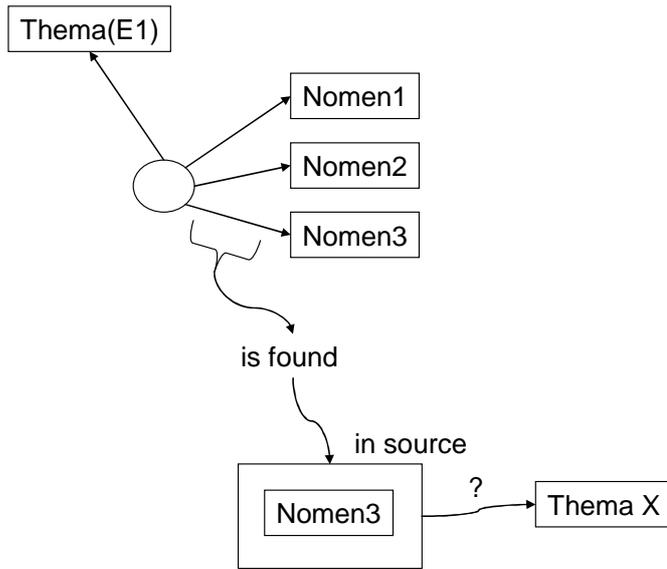
“Regard the set of expressions appearing under a namespace as a scheme.”

Action: New scope note proposal for E32, based on KOS (c.e.s by end of July)

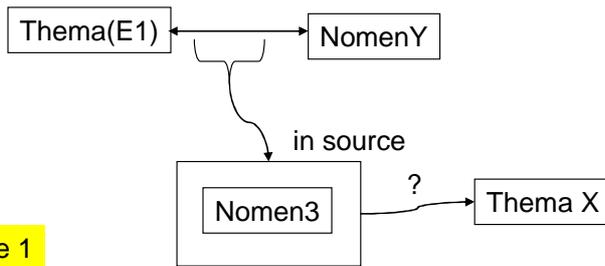
Action: Change range of P71 to E1 CRM Entity.

**Occurrence in any document:**

The discussion was continuing about relating part of document, nomen as appears there, supposed meaning and by commented the following figures



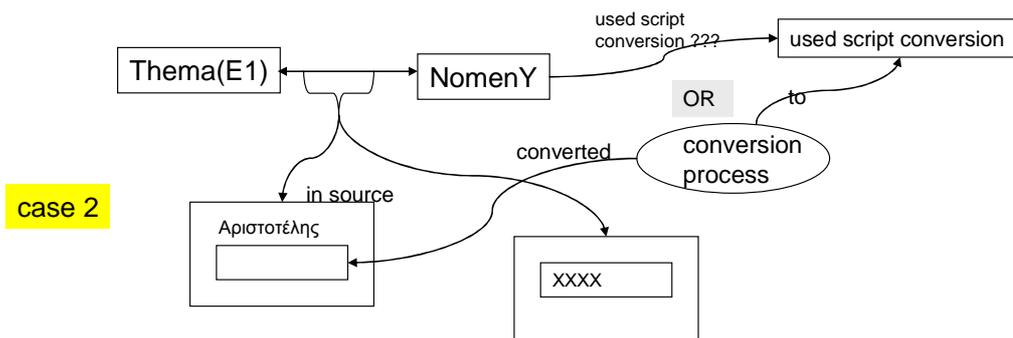
note: In this point the discussion about "the substance of the Nomen" started



case 1

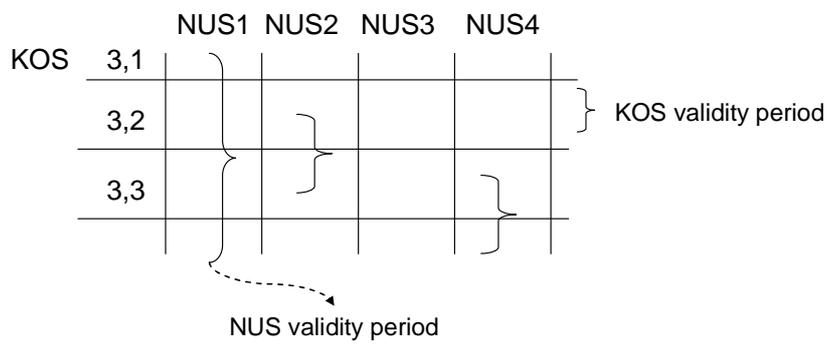
note: by this we declare that the relationship is documented in that source

alternatively

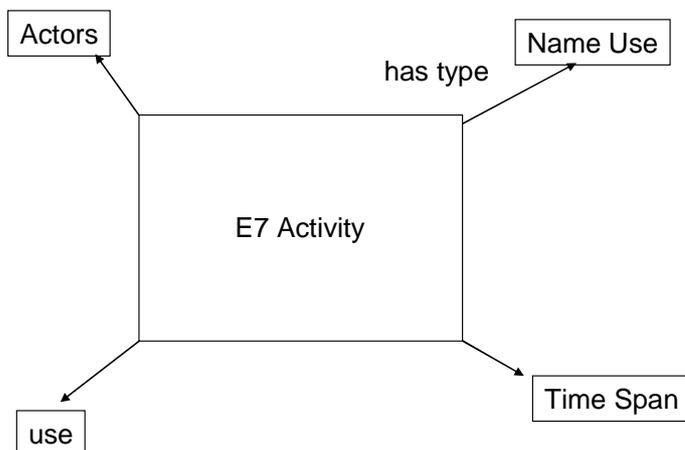
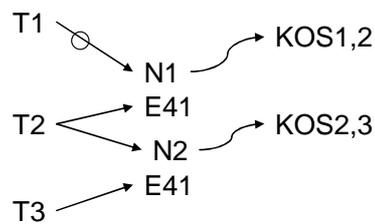
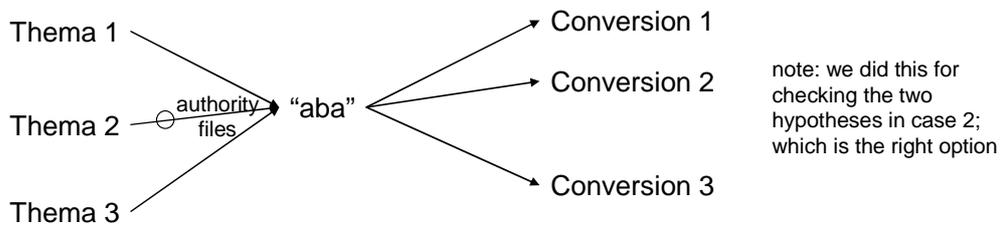


case 2

Nomen Use Statement (NUS)



NOTE: If we model the columns, it is the most expensive thing that we can do. In Nuremberg we decided to model the horizontal thing



So we decided the following properties

Properties:

4.1.1 Type of thema= E1 CRM Entity. P2 has type: E55 Type

4.1.2 Scope note= E1 CRM Entity: P3 has note: E62 String

4.2.1 Type of nomen= E41 Appellation: P2 has type: E55 Type

4.2.2 Scheme= Fxx Nomen Use Statement: Rxx specified by: Fxx KOS

4.2.3 Reference source of nomen= Fxx Nomen Use Statement : Rxx is warranted by : Expression

Warning! Only if Nomen is uniquely defined by one symbolic form!

4.2.4 Representation =P2 has type E55 Type

(implies that alphanumeric and sound for instance must refer to different nomina).

4.2.5 Language = Fxx Nomen Use Statement :belongs to vocabulary in language: E56 Language

4.2.6 Script = P2 has type E55 Type

The script type in the sense of ISO15924. Warning! This implies that one nomen can appear in multiple encodings, and that reference to an encoding (such as Latin-1 and UNICODE) is not unique.

4.2.7 Script conversion = Fxx Nomen Use Statement Rxx used script conversion: Fxx Script Conversion

This property states that the Nomen referred to in a Nomen Use Statement was created by conversion from a not explicitly mentioned source.

4.2.8 Form = P2 has type E55 Type

4.2.9 Time of validity of nomen =

a) Fxx Nomen Use Statement: Rxx specified by: Fxx KOS, Rxx.1 has status: ..... "accepted" = valid in....

Fxx KOS. Rxx has validity period: Time-Span

where Rxx has validity period is a short-cut of a Temporal Entity describing the period for which the particular KOS Expression was regarded as valid by its maintainers. Each validity change of a N.U.S is associated with a release change of the KOS. The individual time of validity of a nomen would be the union of the Time-Spans in which the Nomen was declared valid (or accepted etc...).

b) Fxx Nomen Use Statement: Rxx has validity period in KOS: Time-Span

This is a shortcut/deduction of the previous.

4.2.10 Audience = Fxx Nomen Use Statement :is preferred by: E74 Group

Scope note note: is assumed by the KOS creators to be preferred by..../ to be used in communication with...

4.2.11 Status = Fxx Nomen Use Statement: Rxx specified by: Fxx KOS, **Rxx.1** has status:...

## **section 5.3 Thema-Thema relationships**

### **5.3.1 Hierarchical**

**5.3.1.1** Generic IsA, P127 (SKOS ....)

**5.3.1.2** Whole-part = a series of CRM properties relating to inclusion

*Wednesday 18/05/2011*

**5.3.1.3** Instance = P2 has type, Instance of

**5.3.1.4** Polyhierarchical

This a statement about the cardinality of these relationships in this section, and not a separate relationship in itself.

### **5.3.2 Association**

Any other "related to" relationship. No model necessary

Reuse SKOS/ see ISO2788 ( see ISO25964).

## **5.4 Nomen-nomen relationships**

5.4.1 equivalence we see three cases

a) synonym = Is a query from Nomina through Nomen Use Statements to the Thema, which may be common, and be used as equivalent only if context conditions are adequate... No model needed.

b) near or quasi synonym = SKOS inexact equivalence between Thema (= SKOS:Concept)

c) lexical variants:, "Replaces" is a property of Nomen Use Statement.

Fxx Nomen Use Statement.Rxx has equivalence Fxx Nomen Use Statement.

5.4.2 Whole-part =P106 has component

We Distinguish:

a. Persons thought to be real, thought to be fictitious, fictitious based on real.

b. Persons & persona thought to have created works documented as creators.

The aspect under which a Person is documented, real or literary/fictitious, makes the ontological difference, not its reality.

#### FRAD:Persona

Fxx Persona: subclass of E74 Group,

identities, persona or groups of people assuming an individual identity under which they carry out real work,( or are assumed to..)

#### **FRAD:Character**

Fxx Character: subclass of E28 Conceptual Object,

Characters appearing in works in a way relevant as subjects. Characters may be based on real persons, but as characters they may exhibit properties that would be inconsistent with a real person.

Rather than merging characters with real persons, we describe them as disjoint, but related entities.

#### **Suggestion:**

Property: Fxx Character Rxx is based on: E21 Person (E39 Actor?)

Property: Fxx Persona Rxx is based on: Fxx Character

FRAD:Person = union of E21 Person and FRAD:Persona and FRAD:Character

If we shall find a property for FRAD:Person, we will create the entity...

#### **FRAD:Family**

Fxx Family , subclass of E74 Group,

“Two or more persons related by birth, marriage, adoption, civil union, or similar legal status, or who otherwise present themselves as a family.

Includes royal families, dynasties, houses of nobility, etc.

Includes patriarchies and matriarchies.

Includes groups of individuals sharing a common ancestral lineage.

Includes family units (parents, children, grandchildren, etc.).

Includes the successive holders of a title in a house of nobility, viewed collectively (e.g., Dukes of Norfolk).”

Scope Note to be more precise about how to distinguish a family from all of mankind. Probably we have to take “birth” as a legal notion of descentence.

#### **FRAD:Corporate Body**

$\subset$  F11 Corporate Body  $\cup$  Fxx Fictitious Group,

$\text{FRAD Corporate Body} \setminus \text{Fxx Fictitious Group} \subset \text{F11Corporate Body}$ .

Distinguish again discourse about supposed real versus supposed literary construct.

Since FRBR Corporate Body = F11 is regarded by the Review Group as a slightly wider notion than FRAD Corporate Body, we stick to F11 here.

Fxx Fictitious Group: subclass of E28 Conceptual Object,

any notion of a fictitious group or organisation of people relevant as a subject...

Place name normalization is not in scope of FRAD, not even in the context of describing publishers.

Fictitious places are treated as concepts (Themata...).

**FRAD: Name** = E41 Appellation = F12 Name = FRSAD:Nomen

$\text{E41 Appellation} \supset \text{FRSAD:Nomen} = \text{F12 Name} \supset \text{FRBR Name} \supset \text{FRAD: Name}$

E41 may include names in the sense of linguistics with a history of evolution.

Attribute FRBR Name restricted to characters, FRSAD adds signs.

FRAD restricts to names known in the real world (excluding ad-hoc constructed identifiers).

Propose: Declare F12 as identical with FSAD Nomen, subclass of E41...,

### **FRAD Identifier:**

E42 Identifier = F13 Identifier = (FRAD Identifier  $\cup$  FRAD Controlled Access Point).

FRAD Identifier  $\cap$  FRAD Controlled Access Point =  $\emptyset$

If no attribute specific to FRAD Identifier only can be found, no reason to model disjointness, and use F13 Identifier., but model Controlled Access Point.

FRAD Identifier has no attribute describing the string it is made up of. We regard this as missing detail, and assume generally that it can have such an attribute,...since the identity of an Appellation is not sufficiently given by the symbols it consists of, its identity is distinct from the symbol sequence. This attribute will be modelled.

FRSAD:Nomen  $\supset$  E42 Identifier.

### **FRAD Controlled Access Point**

Fxx Controlled Access Point, subclass of F13.

**FRAD: Rules** = a subclass of F43 Identifier Rule, which applies to any identifier type, it is a subclass of E29 Design or Procedure

No model needed. The restriction of Rules to CAP generation rules can be seen as implicit in the use of the rule for creating a CAP. Use F43.

**FRAD:Agency** = F44 Bibliographic Agency a subclass of F11 CB

### **Implicit in Fig2: FRAD CAP Creation**

= F40 Identifier Assignement.

Propose: Make CAP creation explicit in F40 scope note & Examples.

(Pat Riva)

**Exx Floruit:** subclass of E7 Activity

Flourit means that the Actor so designated was active at a particular date or during a particular period. The type of flourit can be used to describe the type of activity the respective Actor was active in.

=====

Attributes

#### **4.1 FRAD Person**

##### **Dates:**

- a) P98B was born: E67 Birth
- b) P100B died in: E69 Death
- c) P14B performed: Exx Floruit (or E7.... has type: "Floruit")
- d) P12B was present at: E5 Event

##### **Title of person:**

P2 has Type: E55 Type, ("title" seen as category of people that are allowed to carry a name of this category as additive to their names, such as "Dr." "Mrs." etc.

**Gender:** use E55 Type

**Place of Birth:** P98B was born: E67 Birth P7 took place at: E53 Place

**Place of Death:** P100B died in: E69 Death P7 took place at: E53 Place

**Country:**

There are different local interpretations of which relationship is relevant for identification. It may be one of the following:

- a) place of citizenship
- b) place of floruit
- c) place of birth
- d) typical subject of work
- e) typical place of publishing

**Place of residence**

= CRM P74 has current or former residence

**Affiliation:**

= P107B is current or former member of : E74 Group,  
“cultural identity”: P2 has type: E55 Type (such as El Greco “Spanish Painter”)

**Address:**

a place name, includes E51 contact points, E45 Address. These are E44 place

- a) P76 has contact point E51 Contact Point  
(E45 Address subclass of E51)
- b) P107B is current or former member of : E74 Group P76 has contact point E51 Contact Point
- c) CRM P74 has current or former residence: E53 Place P87 is identified by: E45 Address

**Language of person:**

P2 has type: E55 Type.

May be associated with floruit:

P14B performed: Exx Floruit (or E7.... has type: “Floruit”) P32 used general technique: E56 Language.  
(we prefer to see the language as a method to create an Expression rather than an object incorporated or drawn from: P16 used specific object: E56 Language )  
To be thought over. (may be better: CP94 used to create things of type ??)

*Thursday 19/05/2011*

We continued with FRAD

**Field of activity:**

P14B performed: Exx Floruit P2 has type: E55 Type

**Profession/occupation:**

p2 has type: E55 Type  
(P14B performed (P14.1 in the role of: E55 Type) Exx Floruit P2 has type: E55 Type)

**Biography/history:**

P3 has note  
(each part of it is P12 was present at E5 Event)  
In case of a reference:  
FRAD Person: P70B is documented in: E31 Document.

**Other information:**

F12 Name R8 consists of F12 Name  
Propose: Extend domain of R8 to F12  
relation to work:

P14B performed: E65 Creation P94 has created: E28 Conceptual  
or: interpret as a variant name  
P1 is identified by...  
person-to-person see later...

The purpose of this exercise is to produce an ontology of entities and relationships of the reality bibliographic rules act on, i.e. their kinds of arguments and products. This is part of the effort to achieve interoperability between different bibl. rules and practices, and of the effort to recover historical information from bibl. info not primarily intended as such.... (MD->Richard)

Add a paragraph about this to the intro of FRBRoo FRADoo??

## Attributes of Family

### Type:

p2 has type: E55 Type

### Dates:

- a) P95B was formed by: E66 Formation
- b) P99B was dissolved by: E68 Dissolution
- c) P14B performed: Exx Floruit ?? (or E7.... has type: "Floruit")
- d) P12B was present at: E5 Event
- e) ownership: 2 acquisition events

### Place:

CRM P74 has current or former residence  
 P51B is former or current owner of: E53 Place  
 P14B performed: Exx Floruit ?? (or E7.... has type: "Floruit") took place at...

### Field of activity:

P14B performed: Exx Floruit : P2 has type Type (collect all senses of "floruit" in this document...)

### History:

P3 has note  
 (each part of it is P12 was present at E5 Event)  
 In case of a reference:  
 FRAD Family: P70B is documented in: E31 Document.

All properties of persons, except for specific types, birth/death, should also apply for families in FRAD.

All properties of family, except for specific types, should also apply for Corporate Bodies in FRAD.

## Attributes of Work

Subject of work:=  
 P129 is about,  
 for a textual description P3 has note  
**for genre** etc. P2 has type (see also attribute Form of work). It is less problematic than in the e-R definition.  
 FRSAD supersedes as far as the subject relationship is concerned.

### Place of origin of the work:

It is this related to work conception or to the first expression of the work.  
 Place of origin of a cinematographic work is tied to the place of citizenship of the producer (and not the director)

Action: Check redefinitions in FRAD of concepts in FRBR , if they have bearing on the mapping FRBR-to-FRBRoo or on definitions in FRBRoo (Gordon/Pat R.)

### Other distinguishing characteristic

"Any characteristic that serves to differentiate the work from another work with the same title. [FRBR]  
 Includes parts of intellectual or artistic content.  
 Includes musical incipits."

two mappings:

- a) full path from work to fragment or component of any expression/manifestation realizing.

b) “representative expression/manifestation” in FRBRoo

No model needed for Expression, Manifestation.

Discussion:

foaf: focus versus “subject”? Can a subject be itself a propositional object, in contrast to being about a propositional object?

#### **4.7 Attributes of an Item**

##### **Location of item\***

The collection and/or institution, in which the item is held, stored, or made available for access.

Probably meant how to access it – via keeper.

a) has current location: E53 Place

b) P46B forms part of : E78 Collection

c) P46B forms part of : E78 Collection P55 has current location: E53 Place

d) P50 has current keeper : E39 Actor

e) P50 has current keeper : E39 Actor : P74 has current or former residence: E53 Place

##### **Custodial history of item\***

P30B custody transferred through: E10 Transfer of Custody.....

Action: Correct FRAD: not “ownership” but “custody”...( “The record of previous ownership of an item.”)

##### **Immediate source of acquisition of item\***

The source from which an item was directly acquired and the circumstances under which it was acquired.

P30B custody transferred through: E10 Transfer of Custody.....

P24B changed ownership through: E8 Acquisition

#### **4.12 Attributes of a Name**

##### **Type of name**

“The category of a name.

Includes personal names, corporate names, names of families, trade names, and titles of works and manifestations.

Includes names of concepts, objects, events, and places.”

Actually specific to a Nomen use statement:

Fxx Nomen Use Statement –use for- Thema: P2 has type: E55 Type

No reason to model, since the information is already there.

Interpreted as a means to organize authority data into clusters?

SKOS equivalent: (to be looked up).

##### **Name string**

A sequence of numeric and/or alphabetic characters or symbols that represents the name of an entity.

P3 has note (p3.1 has type: “content”) : E62 String

Fxx Nomen: Rxx has content : E62 String

Decision: We regard that any instance/subclass of Nomen should foresee a content string that completely represents the identity of a Nomen instance regardless of the semantics of the structural components it is built from.

A nomen identity may not extend to the interpretation of equivalence of structural components. Occurrence of structural tags in the nomen string are regarded as part of the content symbols.

### **Scope of usage**

The form of work associated with a particular name for a persona. Includes forms, genres, etc., (e.g., literary works, critical works, works on mathematics, detective novels) associated with a name used by an author.

Should be attribute of FRAD Person.

Fxx Nomen Use Statement –use for- Thema:

E39 Actor: P14B performed: Exx Floruit: CP94 used to create things of type

### **Dates of usage**

Dates associated with the use of a particular name established by a person, corporate body, or family.

Fxx Nomen Use Statement: Rxx used during : E52 Time-Span

(check at the end of the modelling correspondance to Name Use Activity...)

### **Language of name**

The language in which the name is expressed.

Script of name

The script in which the name is rendered.

Transliteration scheme of name

The scheme used to produce the transliterated form of the name.

Covered by FRSAD model

## **4.13 Attributes of an Identifier**

### **Type of identifier**

A code or other designation indicating the type of identifier (i.e., the domain in which the identifier is assigned).

Includes alphabetic strings identifying the numbering system (e.g., “ISBN”, “ISSN”, “ISRC”)

Includes symbols designating the type of identifier (e.g., ®)

F13 Identifier P2 has Type: E55 Type

We include types of CAPs in the sense of structural differentiation of the Identifier composition which may come with different Entity types they are designed for.

## **4.14 Attributes of a Controlled Access Point**

### **Status of controlled access point:**

covered by FRSAD, a nomen use statement property

### **Designated usage of controlled access point:**

“...as an authorized (or preferred) form (i.e., authorized access point) or as a variant (or non-preferred) form (i.e., variant access points).”

FRSAD:

#### 4.2.10 Audience

= Fxx Nomen Use Statement :is preferred by: E74 Group

Scope note note: is assumed by the KOS creators to be preferred by.../ to be used in communication with...

Model:

Fxx Nomen Use Statement . Pxx has usage status:Fxx Usage Status . P2 has type: E55 Type

Pxx for target Group: E74 Group

where Fxx UsageStatus is a E29 (or “Plan”)

to replace “is preferred by”.

### **Undifferentiated access point**

Fxx Nomen Use Statement P2 has type: “Possibly non-unique”

### **Language of base access point**

Use: 4.2.5 Language = Fxx Nomen Use Statement :belongs to vocabulary in language: E56 Language

Or: Fxx Nomen R8 consists of: Fxx CAP (has type: BaseAccess Point).. Fxx Nomen Use Statement

:belongs to vocabulary in language: E56 Language ???

### **Transliteration scheme of base access point**

An indication of the scheme used in transliterating the base access point.

### **Transliteration scheme of cataloguing**

An indication of the scheme used in transliterating any additions to the base access point.

### **Source of controlled access point**

The publication or reference source used in establishing the form of name or title on which the controlled access point is based.

Includes

Adopt FRSAD model, adequately to nomen constituents (via R8 or P106).

### **To Do List:**

1. Richard & Maja to write a note for the introduction of the FRSAD/FRAD oo (maybe we can say something in the introduction about how we treat Thema and Nomen)
2. Next Meeting Nov.14-16 in Paris?Berlin?Nuremberg?
3. c.e.s look up anthropology & family relations
4. MD: get BritishMuseum terms for artist relations
5. Mika collaborates with Gordon on an FRBRoo RDFS version 1.0 language-neutral, referring to CRM language-neutral form.
6. Gordon will send message about SKOS discussion about classes for labels to Group
7. introduction of FRBR by PAT by end of MAY

## 24th CIDOC SIG meeting and 18th FRBR-CIDOC CRM Harmonization meeting

November 14th-17th, 2011,  
Royal Netherlands Academy of Arts and Sciences,  
e-Humanities Group, Amsterdam, Netherlands

### *Participants:*

- on all 4 days: Chryssoula Bekiari (ICS-FORTH, GR), Martin Doerr (ICS-FORTH, GR), Gordon Dunsire, Øyvind Eide (King's College London, UK), Gerald Hiebel (University of Innsbruck, AT), Gerald de Jong, (Delving B.V), Anza Masur (University of Innsbruck, AT), Christian Emil Ore (University of Oslo, NO), Pat Riva (Bibliothèque et Archives nationales du Québec, CA), Richard Smiraglia (University of Wisconsin Milwaukee, USA), Maja Žumer (National and University Library, SI), Thomas Wikman, (Delving B.V.).
- on three days (14-16): Patrick Le Boeuf (National Library of France, FR)
- on two days (14, 15): Trond Aalberg (BIBSYS, NO), (16, 17): Matteo Romanello (King's College, London, UK)
- on one day (17): Douglas Tudhope (University of Glamorgan, UK), Paul Mullholland (Open University, UK)

### *Monday 14/11/2011*

We discussed about FRSAD entities and their mapping to CRM in the following order:

1. How to organize the documentation of mappings and how we define the principles and we decided to add justification of the decision if it is not obvious, as well as alternatives, in particular situations. The question is: Should we incorporate these comments in the Definition of FRBR<sub>OO</sub>, or have a separate document for them?
2. Regarding the FRSAD Nomen entity, it is decided:
  - (i) to change the name of F12 from Name to NOMEN
  - (ii) to put F12 Nomen as a subclass of E41 Appellation
  - (iii) to add a new property F12 Nomen.Rxx has content:E62 String
  - (iv) to replace the term "sequence" with the term "arrangement" in the Scope Note
  - (v) to add a sentence to the Scope Note in order to explain why F12 Nomen is subsumed by E41 Appellation
  - (vi) to add a sentence to the Scope Note in order to express that F12 Nomen is equivalent to FRSAD Nomen except that it is restricted to the notion of identity with respect to symbols in one or more scripts

Also we decided to open a new CRM issue in order to generalize the notion of Appellation to CRM and include a reference to NOMEN, and to add an example containing a non-Latin symbol, for example the Chinese character for peace, or a chemical formula, or a mathematical symbol such as  $\infty$ .

3. Regarding the FRSAD Scheme entity: The CRM issue 198 is reviewed and it is decided
  - (i) to leave the scope note of E32 Authority Document as it is
  - (ii) to consider FRSAD:Scheme = KOS, FRAD "authority file"  $\supset$  E32 Authority Document since FRSAD scheme is the scheme where the nomen is established, and includes value encoding schemes (subject heading lists, thesauri, classification systems, name authority lists, etc.) and syntax encoding schemes (standards for encoding dates, etc.).

Then we continue with attributes:

4. Attributes of Thema (4.1):
  - i. *Type of thema* (4.1.1)  $\rightarrow$  E1 CRM Entity.P2 has type:E55 Type
  - ii. *Scope note* (4.1.2)  $\rightarrow$  E1 CRM Entity.P3 has note:E62 String
5. Attributes of Nomen (4.2)

Discussing about F35 Nomen Use statement, we considered that the validity is a period for which a particular KOS expression is regarded valid by its maintainers. We consider that this is a subclass of F2 Expression and we review the proposed properties of the previous meeting.

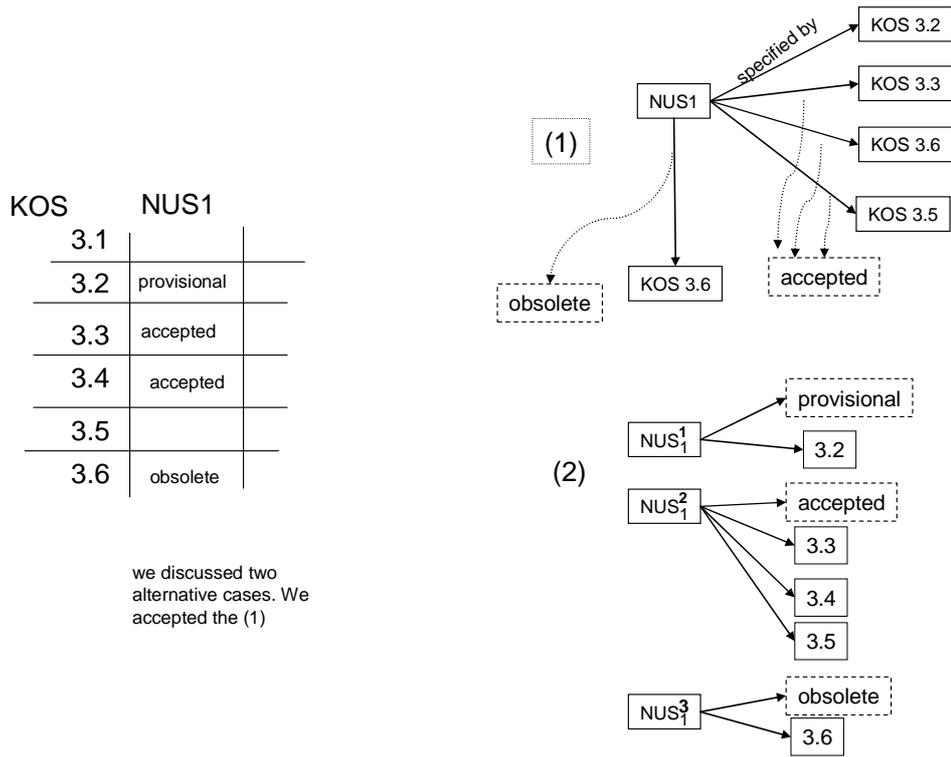


Figure 1: discussion about status property of “specified by” property

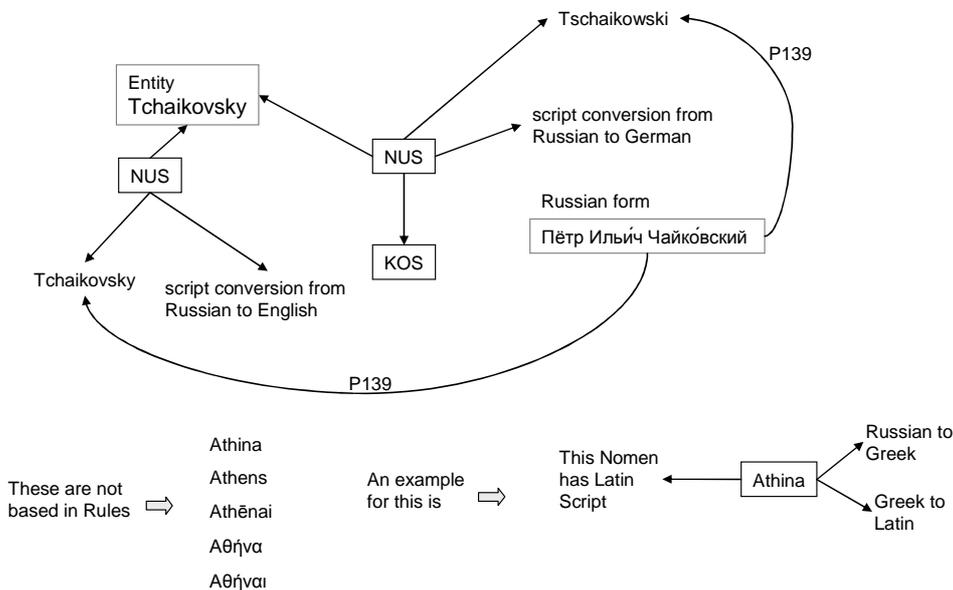


Figure 2: discussion about script conversion

We accepted that (1) one Nomen may have multiple sources (2) in KOS the actually used is unambiguous.

We decided that

- (1) “Rxx has content:E62 String” was wrongly property of F35 Nomen Use Statement, it is property of Nomen
- (2) we need to define a content model taking into account the syntax, type, serialization. Also we noticed that this property should have as property Rxx.1 encoding: E55 Type. (Martin will write the scope note and example about encoding including Ascii and Latin).
- (3) we need to open a CIDOC CRM Issue about the content of the symbolic object and to add a note about the content to the scope note of P3. (Pat will give an example).

And then we decided that any instance/subclass of Nomen should foresee a content string that completely represents the identity of a Nomen instance regardless of the semantics of the structural components it is built from.

A nomen identity may not extend to the interpretation of equivalence of structural components. The occurrence of structural tags in the nomen string is regarded as part of the content symbols.

We revised the attribute name string of FRAD name(4.12). We revised the following mapping:

- (i) *FRAD Name string of Name (4.12) → F12 Nomen: Rxx has content : E62 String.* Examples will include a nomen in different encodings.

Finally we made the following mappings:

- (ii) *Type of nomen (4.2.1) → F12 Nomen. has type: E55 Type*
- (iii) *Scheme(4.2.2) → F35 Nomen Use Statement. Rxx specified by: F34 KOS*
- (iv) *Reference Source of Nomen(4.2.3) → F35 Nomen Use Statement. R32 is warranted by: F2 Expression*
- (v) *Representation(4.2.4) → F12 Nomen. P2 has type: E55 Type*
- (vi) *Language(4.2.5) → F35 Nomen Use Statement. Rxx has nomen language: E56 Language*
- (vii) *Script(4.2.6) → F12 Nomen. P2 has type: E55 Type*
- (viii) *Script conversion(4.2.7) → F35 Nomen Use Statement. Rxx used script conversion: Fxx Script Conversion (for the present time only, it is under consideration)*
- (ix) *Form(4.2.8) → F35 Nomen Use Statement. Rxx has nomen form: E55 Type*
- (x) *Audience(4.2.10), we noticed that it is not “usage status” as we had declared in the previous meeting and we deleted the Rxx has usage status: Fxx Usage Status. Instead: F35 Nomen Use Statement Rxx is preferred for E74 Group*
- (xi) *Status(4.2.11) → F35 Nomen Use Statement. Rxx specified by: F34 KOS, Rxx.1 has status*

Draft scope notes have been added to:

*R32 is warranted by : F2 Expression, Rxx specified by: F34 KOS, Rxx has equivalence: F35 Nomen Use Statement, Rxx used during: E52 Time-span, Rxx is preferred for: E74 Group, Rxx has nomen language: E56 Language.*

We postponed the definition of *Rxx used script conversion: Fxx Script Conversion*

We continue with the mapping on relationships

#### 6. WORK-to-THEMA Relationship

- (i) *has as subject (is subject of)(5.1) → P129*
- (ii) *has appellation(5.2) → P1*

#### 7. THEMA-to-THEMA Relationships(5.3)

*Hierarchical(5.3.1)*

- (i) *Generic(5.3.1.1) → IsA, P127 (SKOS)*
- (ii) *Whole-part(5.3.1.2) → (a) to new property NTP(narrower term partitive)  
→ (b) a series of CRM properties relating to inclusion.*

We decided that we need a new property for E55 Type about narrower term partitive (Maja, Martin and Pat will look up to the ISO2788 and make a proposal). Also we should make a list of a series of CRM properties relating to inclusion to be listed. (Martin will do it)

- (iii) *The Instance Relationship (5.3.1.3) → E55 Type. P2B is type of: E1 CRM Entity*
- (iv) *Polyhierarchical(5.3.1.4), no mapping since this is statement about cardinality of these relationships in this section and not a separate relationship itself.*

*Associative Relationships(5.3.2)*

- (v) *Association → any other “related to” relationship*

#### 8. NOMEN-to-NOMEN Relationships(5.4)

- (i) *Equivalence (5.4.1) → F35 Nomen Use Statement. Rxx has equivalence: F35 Nomen Use Statement*
- (ii) *Whole-part (5.4.2) → F12 Nomen (E90 Symbolic Object). P106 has component: E90 Symbolic Object*

#### 9. We changed the range of R47 used constituent (was used in) from F12 Name to E90 Symbolic Object. As a consequence, the range of the CIDOC CRM property P142 used constituent (was used

*in*) should also be E90 Symbolic Object instead of E41 Appellation (issue to be opened).

10. We made the corrections to domain and range of R15. Therefore:

F23 Expression Fragment. R15 is fragment of (has fragment): F2 Expression Fragment became:

F2 Expression. R15 has fragment (is fragment of): F23 Expression Fragment

11. The *P148 has component (is component of)* has been removed from Superproperty of R15

12. The decisions described in bullets 9,10,11 shall be included in version 1.0.2 of FRBR<sub>00</sub>, which will be a stable version. All the other changes which have been produced during the harmonization of CIDOC-CRM, FRBR, FRSAD, FRAD will be included to in the new version 2.0.

*Tuesday 15/11/2011*

We reviewed the mappings from FRAD to CIDOC CRM and FRBR. We start with the mappings of Entity of FRAD section 3.4

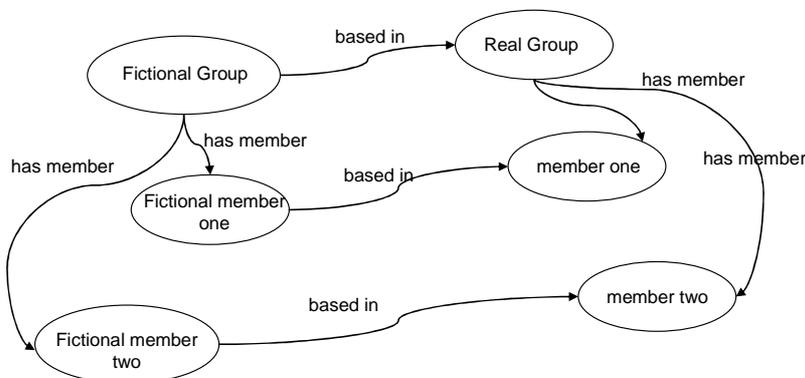
13. We add a scope note to F37 Persona in order to cover also pseudonyms. We deleted the property “*F37 Persona.Rxx is based on: Fxx Character*” and we added the property *F37 Persona. Rxx was persona of (used persona): E39 Actor*. So we revised the mapping from FRAD Person to CRM and FRBR<sub>00</sub> as follows:

(i) *FRAD Person (3.4) → E21 Person U F37 Persona U F38 Character*

14. Reviewing the proposed entity F38 Character we discussed the distinction between the terms “fictitious” and “fictional”. We agreed that a question about F38 Character should be “are we interesting about characters that are fictitious and non fictional?”

We added the scope note of property “*Rxx is based on: E39 Actor*” and also we added a new property “*Rxx has fictional member (is fictional member of): F38 Character*”

15. Discussing about FRAD Family, we discussed about fictional groups and fictional membership. We made the following Figure 3 and we try to investigate if there is a relation between character and work since we noticed that it seems to have similar structure with work.



**Figure 3: fictional group discussion**

Finally we reviewed the scope note of F39 Family entity and we rejected the proposed entity Fxx Fictitious Group. Also we accepted that there is a relation between iconography and character.

16. Then we added the mapping

(i) *FRAD Family → F39 Family*

17. discussing about FRAD Corporate Body we considered F11 as a superclass of E40 Legal Body and we revised the following mapping

(i) *FRAD Corporate Body → F11 Corporate Body U F38 Character*

18. Then we added the following mappings:

(i) *FRAD Work → F1 Work*

(ii) *FRAD Expression → F2 Expression*

(iii) *FRAD Manifestation → F3 Manifestation Product Type U F4 Manifestation Singleton*

(iv) *FRAD Item → F5 Item*

(v) *FRAD Concept → F6 Concept*

(vi) *FRAD Object* → *F7 Object*

(vii) *FRAD Event* → *F8 Event*

19. About FRAD Place we added the mapping

(i) *FRAD Place* → *F9 Place*

And we concluded that Place name normalization is not in scope of FRAD, not even in the context of describing publishers. Fictitious places are treated as concepts (Themata etc).

20. About FRAD Name, we accepted the following mapping

(i) *FRAD Name* → *F12 Nomen*

and we agreed on

(ii)  $E41 \text{ Appellation} \supset \text{FRSAD:Nomen} = F12 \text{ Nomen} \supset \text{FRBR Name} \supset \text{FRAD: Name}$

(iii) E41 may include names in the sense of linguistics with a history of evolution.

Attribute FRBR Name restricted to characters, FRSAD adds signs

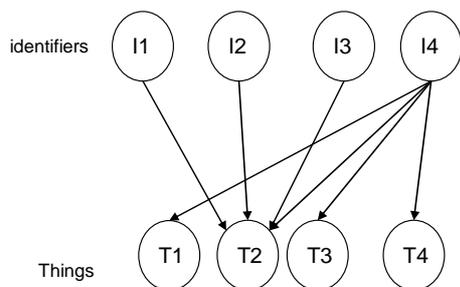
(iv) FRAD name excludes ad-hoc constructed identifiers

21. About FRAD identifiers: We concluded that

(i)  $(\text{FRAD Identifier} \cup \text{FRAD Controlled Access Point}) = E42 \text{ Identifier} = F13 \text{ Identifier}$ .

We added the scope note to F50 Controlled Access Point entity. It does not cover the notion of cross references; but it does cover both preferred and variant forms.

22. About Controlled Access Point creation: we argue about their role.



**Figure 4: From the discussion about CAP**

Finally we accepted that they maybe generated by (i) relationships (ii) rules (iii) controlled list.

Also we change the scope notes and the examples in F40 Identifier Assignment in order to include CAP.

23. About FRAD Rules: We assumed that it pertains to identifier formulation and/or recording. The restriction of Rules to CAP generation rules can be seen as implicit in the use of the rule for creating a CAP. Finally we decided that

(i) *FRAD Rules* is a subclass of *E29 Design or Procedure* and a super class of *F43 Identifier Rule*.

(ii) and that *E43 Identifier Rule* is a subclass of *F2 Expression*.

24. About Agency: we considered

(i) *FRAD Agency* equals to *F44 Bibliographic Agency* and subclass of *F11 Corporate Body*.

(ii) Also we changed the superclass of *F44* from *F11 Corporate body* to *E40 Legal Body*.

Then we continue with the attributes of a Person on section 4.1

25. About FRAD Dates of a Person: We discussed about Floruit. We create a new class *F51 Floruit* subclass of *E7 Activity* and we wondered whether it should not be declared in CIDOC-CRM instead. We added the following mappings:

(i) *FRAD Dates* → *E21 Person.P98B was born:E67 Birth*

(ii) *FRAD Dates* → *E21 Person.P100B died in:E69 Death*

(iii) *FRAD Dates* → *E39 Actor.P14B performed:F51 Floruit*

(iv) *FRAD Dates* → *E39 Actor.P12B was present at:E5 Event*

26. About FRAD Title of Person: Title has been seen as a category of people that are allowed to carry a name of this category as additive to their names, such as “Dr”, “Mrs” etc. or as the name of the office the person holds or held that justified the title or as other information. We added the following mappings respectively:

(i) *FRAD Title of Person* → *E21 Person.P2 has type:E55 Type*

- (ii) *FRAD Title of Person* → *E21 Person*. P107B is current or former member of: E74 Group
  - (iii) *FRAD Title of Person* → *F12 Nomen.R8 consists of: E90 Symbolic Object*
27. About FRAD Gender: we decided to use E55 Type. So we made the mapping:
- (i) *FRAD Gender of Person* → *E21 Person.P2 has type: E55 Type*
28. *FRAD Place of Birth* → *E21 Person.P98B was born: E67 Birth.P7 took place at: E53 Place*
29. *FRAD Place of Death* → *E21 Person.P100B died in: E69 Death.P7 took place at: E53 Place*
30. About FRAD Country of a Person: We considered that country is very important and we should specify this type of association explicitly. There are different local interpretations of which relationship is relevant for identification. Also, at this point it occurred to us that it was necessary to define the property "*F51 Floruit.Rxx has typical subject: E1 CRM Entity*". It may be one of the following:
- (i) *place of citizenship*
  - (ii) *place of floruit* → *F51 Floruit.P7 took place at (witnessed): E53 Place*
  - (iii) *place of birth*
  - (iv) *typical subject of work* → *F51 Floruit: Rxx has typical subject: E1 CRM Entity.*
  - (v) *typical place of publishing which is the same as (ii)*
31. About FRAD Place of Residence → *E39 Actor. P74 has current or former residence (is current or former residence of): E53 Place*
32. About FRAD Affiliation we made the following mappings
- (i) *FRAD Affiliation* → *E39 Actor. P107B is current or former member of: E74 Group*
  - (ii) *FRAD Affiliation* → *E39 Actor. P2 has type: E55 Type (this is the appropriate for cultural identity, such as El Greco is "Spanish painter")*
33. About FRAD Address: A place name, includes E51 Contact Point, E45 Address. These are E44 Place, also E45 Address Isa E51 Contact Point. We made the following mapping:
- (i) *FRAD Address* → *E39 Actor.P76 has contact point: E51 Contact Point*
  - (ii) *FRAD Address* → *P107B is current or former member of : E74 Group. P76 has contact point: E51 Contact Point*
  - (iii) *E39 Actor. P74 has current or former residence: E53 Place. P87 is identified by: E45 Address*
34. About FRAD Language of a Person and Language of a family: We decided to see the language as a method to create an Expression rather than an object incorporated or drawn from: P16 used specific object: E56 Language. For this reason we added the property: "*F51 Floruit. Rxx used to use language: E56 Language* and then we added the following mapping,
- (i) *FRAD Language of a Person* → *E39 Actor.P14B performed: F51 Floruit.Rxx used to use language ?*
- but we decided to postpone our decision as we still need to consider using the Meta-CRM property *CP94 used to create things of type*.
- Also we revised the mapping of attributes of a family language in section 4.2. We noted there the following mapping:
- (ii) *FRAD Language of a Family* → *E39 Actor.P14B performed: F51 Floruit.Rxx used to use language ?*
35. FRAD Field of Activity: → *E39 Actor.P14B performed: F51 Floruit.P2 has type: E55 Type*
36. Profession occupation: It is either a classification or the floruit type. We did the mapping:
- (i) *FRAD Profession/Occupation* → *E21 Person.P2 has type: E55 Type*
  - (ii) *FRAD Profession/Occupation* → *E21 Person.P14B performed (P14.1 in the role of: E55 Type) F51 Floruit P2 has type: E55 Type)*
37. About Biography/history: Each part of it is *P12 was present at E5 Event*. We added the following mapping:
- (i) *FRAD Biography/history* → *E21 Person.P12B was present at: E5 Event.P3 has note: E62 String*
  - (ii) *FRAD Biography/history (in the case of reference)* → *E21 Person. P70B is documented in: E31 Document*
38. Other information: we see two cases of mapping
- (i) *FRAD Other information* → *F12 Nomen.R8 consists of : E90 Symbolic Object*

- (ii) FRAD Other information → E21 Person.P2 has type:E55 Type
- (iii) FRAD Other information → E21 Person. P107B is current or former member of:E74 Group

Wednesday 16/11/2011

The discussion about FRAD relationships started. We started to examine the relationships depicted in the High-Level Diagrams figure 2 of FRAD.

### 5.2 section

- 39. has appellation/is appellation of → E1 CRM Entity.P1 is identified by: E41 Appellation
- 40. is assigned/ is assigned to → E1 CRM Entity.P1 is identified by: F13 Identifier
- 41. is basis for (is based on) → F40 Identifier Assignment.R47 used constituent (was used in):E90 Symbolic Object
- 42. is governed by (govern) → F13 Identifier. R46B was assigned by: F40 Identifier Assignment R52 used rule: F43 Identifier Rule
- 43. is created/modified by (creates/modifies) → F44 Bibliographic Agency.P14B performed: F40 Identifier Assignment: R46F assigned: F13 Identifier.

We noticed here that an identifier is never modified, as any “modification” actually results in the creation of a new identifier. A P1 relationship may be modified using a new identifier

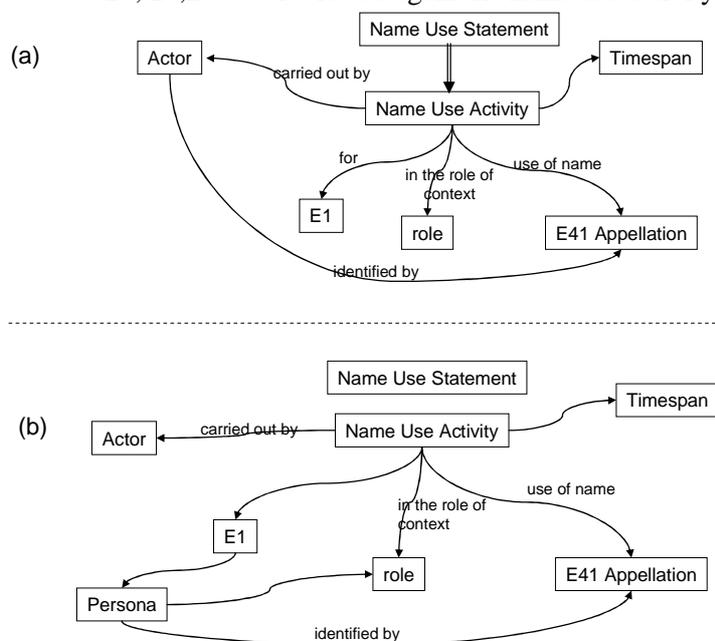
- 44. are applied by/applies → Inverse of: (F44 Bibliographic Agency.P14B performed: F40 Identifier Assignment: R52 used rule (was the rule used in): F43 Identifier Rule)
- 45. is associated with: we decided that no model is needed since this relationship is a placeholder for respective FRBR relationships which define active roles in the creation/publication/publishing processes

### 5.3 section

We discussed the relationships between Persons, Families, Corporate Bodies, and Works

- 46. Pseudonymous relationship → F37 Persona.Rxx was persona of (used persona):E39 Actor
- 47. Secular relationship (Religious relationship) → Rxx was persona of (used persona).
- 48. Official relationship → P107B is current or former member of: E74 Group. P2 has type [“office”]

At this point we discussed that having names in roles is a notion behind all these relationships in 26, 27,28. We reviewed again the name use activity as it is presented in figure 5.



**Figure 5: Name use activity**

We argued about (a) and (b) cases of the above figure and we concluded that it may be confused with a name change and it is a notion of role-specific names behind all these. That might mean adding a “role or context” to a name use activity.

Finally we accepted that it is an open question, but for simple cases we may use the (b) case of the above figure 5 and we will think about it for the next meeting.

At this point we revised the mappings to the type attribute of Name(4.12), specific to a name use activity:

- (i) FRAD *Type of Name(4.12)* → F52 *Name Use Activity*.Rxx named: E1 CRM Entity: P2 has type: E55 Type
- (ii) FRAD *Scope of Usage(4.12)* → F52 *Name Use Activity*.Rxx named: E39 Actor.Rxx in the role or context of: E55 Type (creating genre/subject).
- (iii) FRAD *Dates of Usage(4.12)* → F52 *Name Use Activity*: P4 had time-span: E52 Time-Span

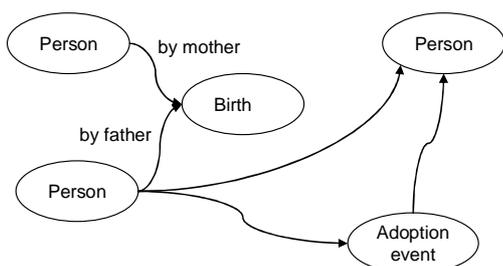
49. *Attributive relationship* → E39 Actor. P14B performed: E65 Creation. P94F has created: F1 Work. P94B was created by: E65 Creation. P14F was carried out by: E39 Actor. (With one of the two work assignments regarded to be false).

We argued about this mapping since we may consider the option of “see also” for this mapping.

50. *Collaborative relationship* → E39 Actor. RxxB used persona: F37 Persona. RxxF was persona of: E39 Actor

We made a note here that the FRAD text does not reflect the intention but the collaboration under a single persona

51. Then we discussed about the necessity to model relationships between members of a group, sibling, parent/child, family along with the ISSUE 199 from CIDOC CRM work list posted by Christian Emil Ore. Then we consider the model that CEO made for the German Library presented in figure 6.



Finally we decided to have a set of well defined events to establish these relationships. About the ISSUE 199, we decided to add a property "by parent" from E21 Person to E67 Birth. CEO will elaborate the scope note of this property. Under this notion we made the following mappings for the present time and when the issue 199 is resolved we will review them.

- (i) *Sibling relationship* → E39 Actor. P107B is current or former member of: E74 Group (P107.1 kind of member: E55 Type ["child"]) P2 has type ["nucleus family"]
- (ii) *Parent/child relationship* → E39 Actor. P107B is current or former member of: E74 Group (P107.1 kind of member: E55 Type ["parent"], ["child"])
- (iii) *Membership relationship* → E39 Actor. P107B is current or former member of: F39 Family
- (iv) *Membership relationship* → E39 Actor. P107B is current or former member of: F11 Corporate Body

52. *Genealogical relationship* → F39 Family: P95B was formed by: E66 Formation. Pxx was formed from: E74 Group.

At this point here we posted a CRM issue for adding a property “Pxx was formed from” and then resolving this issue to accept the proposed mapping.

53. *Founding relationship* → E39 Actor. P14B performed: E66 Formation. P95F formed: F11 Corporate Body

54. *Ownership relationship* → F39 Family. P107B is current or former member of: F11 Corporate Body (P107.1 kind of member: E55 Type ["owner"]).

Also we decided that other interpretations of ownership should be represented by a note

55. *Hierarchical relationship* → F11 Corporate Body. P107B is current or former member of: F11 Corporate Body

56. About *Sequential relationship*, we see three cases:
- Conference series: each “conference” is a member of the series. The formation of one *P120 occurs before* the formation of the next.
  - change of name: no specific modelling is required, see Nomen Use Statement.
  - group merge/split: Transformation.
57. Placeholder for FRBR. Relate to relevant FRBR mappings: we should list here the item numbers of FRBR<sub>ER</sub> to FRBR<sub>OO</sub> mappings
58. *Relationships between names and persons* (5.4.2) (earlier name relationship, later name relationship, Alternative linguistic form relationship, Other variant name relationships). Finally we decided that we need the name use activity, even if in the issue 147 of CIDOC-CRM we have decided that E7 Activity covers the notion of the name usage, during the harmonization of FRAD we saw that this notion has a conceptual part that was missing from E7. At this point we elaborated a provisional definition of the class F52 and we considered the following mappings for:
- *Earlier/Later name relationship* → connect two F52 name use activities by *P120 occurs after*
  - *Alternative linguistic form relationship* → F52 Name Use Activity: *Rxx used in kind of role or context*: E56 Language (hint. Use two name use activities referring to the same named item.)
  - *Other variant name relationships* → connect two F52 name use activities on the same named item
59. *Acronym / initials / abbreviations relationship*(5.4.3) → connect 2 F52 name use activities on the same named item (hint. “no need seen to be specific to the relationship in case multiple names and acronyms are used.”)
60. Relationships between Controlled Access Points(5.5) → *F35 Nomen Use Statement.Rxx has equivalence F35 Nomen Use Statement*

### To Do List:

- Richard & Maja to write a note for the introduction of the FRSAD/FRAD<sub>oo</sub> (maybe we can say something in the introduction about how we treat Thema and Nomen)
- Trond to review the scope note of F12 Nomen and to find an example including a chemical formula.
- MZ,MD,PR to define new property NTP (narrower term partitive) for *Whole-part*(5.3.1.2) THEMA-to-THEMA Relationship
- MD to define a list of a series of CRM properties relating to inclusion for *Whole-part*(5.3.1.2) THEMA-to-THEMA Relationship
- To make an issue to the CRM-SIG about the content of the symbolic object.
- to make an issue to the CRM-SIG to generalize the notion of Appellation to CRM and include a reference to NOMEN and also to add an example containing a non-Latin symbol, for example the Chinese character for peace.
- Martin to write the scope note of the property F12 Nomen.Rxx has content:E62 String with property Rxx.1 encoding:E55 Type and example about encoding including Ascii and Latin; Pat will give an example about Rxx has content
- Maja, Martin and Pat will look up to the ISO2788 and make a proposal for a new property of E55 Type.
- Martin will make a list of all the properties of CRM relating to inclusion.
- By end of February all the homework should have been done.
- Update foreword and introduction by Pat. In the introduction it should be mentioned how “thema” is used and why we model name use statement instead of a nomen. Controlled access point should be highlighted
- To be examined if we need a class like F51 Floruit in CIDOC-CRM.
- In the appendix should be an introduction to FRAD
- The harmonized version of FRBR<sub>oo</sub>, CIDOC-CRM, FRAD and FRSAD will be the version 2.0 and we should have something readable by May.

22. For the missing scope notes, Martin will assign them to the members of the SIG.
23. CEO will elaborate a model for relationships within families which will focus on intentional activities and will not be based on biological associations. This should be resolved along with the issue 199 of CIDOC CRM.

## 27th CIDOC SIG meeting and 20th FRBR-CIDOC CRM Harmonization meeting

19 November – 22 November, 2012,  
Cultural Heritage Agency of Netherlands (Rijksdienst voor het Cultureel Erfgoed: RCE),  
Amersfoort, Netherlands

### *Participants:*

- 1<sup>st</sup> Day: Chryssoula Bekiari (ICS-FORTH, GR), Patrick Le Boeuf (National Library of France, FR), Martin Doerr (ICS-FORTH, GR), Steve Stead, Mika Nyman, Christian Emil Ore, Tanja Merčun (University of Ljubljana, SI), Maja Žumer (National and University Library, SI), Thomas Wikman, (Delving B.V.),
- 2<sup>nd</sup> Day :Chryssoula Bekiari (ICS-FORTH, GR), Patrick Le Boeuf (National Library of France, FR), Martin Doerr (ICS-FORTH, GR), Steve Stead, Mika Nyman, Christian Emil Ore, Tanja Merčun (University of Ljubljana, SI), Maja Žumer (National and University Library, SI), Thomas Wikman, (Delving B.V.), Justyna Walkowska (Poznan Supercomputing and Networking center, PL), Dominic Oldman (British Museum, UK)
- 3<sup>rd</sup> Day: Chryssoula Bekiari (ICS-FORTH, GR), Patrick Le Boeuf (National Library of France, FR), Martin Doerr (ICS-FORTH, GR), Steve Stead, Mika Nyman (University of Jyväskylä, FI), Christian Emil Ore, Tanja Merčun (University of Ljubljana, SI), Maja Žumer (National and University Library, SI), Thomas Wikman, (Delving B.V.), Justyna Walkowska (Poznan Supercomputing and Networking center, PL), Dominic Oldman (British Museum, UK), Gerald de Jong (Delving, NL), Peter Andrew (DIGISAM, SE), Achille Felicetti (PIN PRATO, IT), Sanja Halling (DIGISAM, SE), Rolf Källman (DIGISAM, SE), Cris Kremers (Erfgoed Brabant, NL), Geert Bukkems (Klok & Peel Museum, NL), Stefan Gradmann (HUMBOLDT University Berlin, De), Christian Stein (HUMBOLDT University Berlin, De), Hans Schraven, Gerald Hiebel (UIBK, AT), Oyvid Eide, Günther Görz (FAU, DE), Christina Vona (UCL, UK), Jonathan Whitson Cloud (British Museum, UK), Paola Ronzino (PIN Cyprus, CY)
- 4<sup>th</sup> Day: Chryssoula Bekiari (ICS-FORTH, GR), Patrick Le Boeuf (National Library of France, FR), Martin Doerr (ICS-FORTH, GR), Steve Stead, Mika Nyman (University of Jyväskylä, FI), Christian Emil Ore, Tanja Merčun (University of Ljubljana, SI), Maja Žumer (National and University Library, SI), Thomas Wikman, (Delving B.V.), Justyna Walkowska (Poznan Supercomputing and Networking center, PL), Dominic Oldman (British Museum, UK), Gerald de Jong (Delving, NL), Peder Andrew (DIGISAM, SE), Achille Felicetti (PIN PRATO, IT), Sanja Halling (DIGISAM, SE), Rolf Källman (DIGISAM, SE), Cris Kremers (Erfgoed Brabant, NL), Geert Bukkens (Klok & Peel Museum, NL), Stefan Gradmann (HUMBOLDT University Berlin, De), Christian Stein (HUMBOLDT University Berlin, De), Hans Schraven, Gerald Hiebel (UIBK, AT), Oyvid Eide, Günther Görz (FAU, DE), Christina Vona (UCL, UK), Jonathan Whitson Cloud (British Museum, UK), Paola Ronzino (PIN Cyprus, CY), Pekka Hentonen

### *Monday 19/11/2012*

The SIG started with reviewing the draft text of the FRBR ver. 2.0.

1. The name of Pat Riva is added to the editor's list
2. The contributors list is re arranged
3. We make changes in 1.1 purposes
4. The Introduction will be revised by Maja
5. We changed the text in 1.1.10
6. We revised the F12 and we decided to add an example to show how talking about a person creates variants about concepts and not individual
7. Then we revised the 1.2.2 paragraph, F18 and F35. In F35 we add a note in order to check if something is needed to be changed.

8. Mika will give an issue about electronic publishing and F3 Manifestation Product Type
9. We changed the scope note of F24
10. We discussed about what a scope next will contain and we decided that in a scope note it should be described the following:
  - a. Substance
  - b. Identity condition
  - c. Unity criteria
  - d. Existence conditions
11. Discussing about F35, we decided that it should be in CRM in P142 a library example
12. We decided to make some structures with graphical overview about some logical units in 2.1 (Patrick will do them)
13. Maja will ask about the acceptance of FRBRoo, before the next meeting to have a final form of FRBR 2.0
14. We revised the examples in F50
15. F51 we changed the scope note and a new example is added
16. In F52 we discussed about how we identify an event. We decided to introduce a viaf identifier to the examples
17. We revised (i) the scope note and the examples of R8, (ii) section 2.4, (iii) the scope note of R32, R36
18. Patrick will make an example for F35
19. Maja will add an example in R37
20. In R38 we changed the superclass
21. An example is needed for F50, we checked the examples.

*Tuesday 20/11/2012*

22. We revised the texts in 1.1, 1.1.2, 1.3, 1.2.2
23. The example of Maxwell equations in F50 should be added to E28 Conceptual Object
24. Revising the examples in R32 we decided to represent the Name Use Statement by a line that contains the identifier and the ellipsis to represent the Nomen Use statement
25. We revised again the 1.1.2, R38 examples, R40, R54, R59 (we need some real life examples)
26. Discussing about R60 it is proposed a proposal to be made by Martin about how to describe categorical statements and to introduce in the mapping comments for all categorical statements
27. Then we revised the scope notes and examples of R62, R63

## 28th CIDOC SIG meeting and 21st FRBR-CIDOC CRM Harmonization meeting

6 – 8 June, 2013,  
Riksarkivet Marieberg (The National Archives),  
Stockholm, Sweden

### *Participants:*

Chryssoula Bekiari (ICS-FORTH, GR), Martin Doerr (ICS-FORTH, GR), Steve Stead (Paveprime, UK), Mika Nyman (Synapse Computing, FI), Christian Emil Ore (University of Oslo, NO), Thomas Wikman, (Delving B.V., SE), Dominic Oldman (British Museum, UK), Gerald de Jong (Delving, NL), Øyvind Eide, Faith Lawrence (King's College London, UK), Kaie Jeaser (Estonia museums, EE), Wolfgang Schmidle (DAI Bohn, DE), Pedro Szekely (University of Southern California, US), Peter Andrew (DIGISAM, SE)

### *Friday 7/6/2013*

#### **FRBR issues.**

ISSUE 10: F5 Item does not pertain to electronic publishing. A copy on my machine is the intellectual equivalent, but not an instance of F5. Further discussions are needed.

ISSUE 11: The issue is accepted. The example should be deleted

ISSUE 12: The CRM-SIG accepted the issue and it is decided to find a volunteer for resolving this by (e-mail).

ISSUE 13: The issue is not accepted since this notion it should be covered by F27 and we should avoid to declare things twice.

ISSUE 14: No discussion is made, since no representatives from FRBRoo

ISSUE 15: No discussion is made, since no representatives from FRBRoo

ISSUE 16: We withdraw this issue.

The CRM-SIG decided to accept the proposal of Patrick Le Boeuf about mentioning in the introduction Pat Riva as co-chair of the FRBR/CRM Harmonisation WG .

Then we discussed the proposal of Martin Doerr about R57 and the comments about this proposal that Maja Zumer and Patrick Le Boeuf have sent and SIG decided to ask Martin to revise his proposal.

Closing this meeting, we decided that the next meeting will be 21-24 of October in Paris or Crete and the following meeting will be 4 days starting from March 31 of 2014 with the subjects CIDOC-CRM, FRBR, Archives, CultureCloud

## 29th CIDOC SIG and 22nd FRBR-CIDOC CRM Harmonization meeting

21 – 25 October, 2013,  
FORTH, Heraklion, Crete

### *Participants:*

Trond Aalberg (BIBSYS, NO), Carlo Alloca (ICS-FORTH, GR), Chryssoula Bekiari (ICS-FORTH, GR), Patrick Le Boeuf (National Library of France, FR), Martin Doerr (ICS-FORTH, GR), Øyvind Eide (Universität Passau, DE), Achille Felicetti (PIN PRATO, IT), Gerald Hiebel (ICS-FORTH, GR), Gerald de Jong (Delving, NL), Athina Kritsotaki (ICS-FORTH, GR), Richard Light (UK), Ambjorn Lindahl (National Archives of Sweden, SE), Ambjörn Naeve (KTH, SE), Nikos Minadakis (ICS-FORTH, GR), Mika Nyman (Synapse Computing, FI), Dominic Oldman (British Museum, UK), Christian Emil Ore (University of Oslo, NO), Manolis Papadakis (ICS-FORTH, GR), Aline Le Provost (ABES, FR), Pat Riva (Bibliothèque et Archives nationales du Québec, CA), Michalis Sfakakis (IONION University, GR), Ourania Smyrnaki (ICS-FORTH, GR), Steve Stead (Paveprime, UK), Maria Theodoridou (ICS-FORTH, GR), Thomas Wikman, (Delving B.V, National Archives, SE), Maja Žumer (National and University Library, SI)

### *Monday 21/10/2013*

The meeting has been started by discussing FRBR issues.

**FRBR ISSUE 10:** We started discussing about the physicality of the F5 Item. We discuss if there is a unit boundary and we agreed that each item belongs to one publication expression and electronic publishing means no item. Under this view item has to go out from figure 5.

Also we made clear that URLs identify a file in a machine. Finally we decided

- (1) to make a note in F32 Carrier Production Event (SS' HW) scope note that this kind of event may produce either an item or a publication in electronic media
- (2) to add a new class F53 Material Copy(MD's HW) of a file, taking into account the following
  - (i) To address the use of URL's
  - (ii) The physical file is an area on the disc and the disc can be seen physically
  - (iii) To consider the copy of a file on the disc as an entity
  - (iv) The publication expression remains identical even though the item is not identical
- (3) The scope note of F5 should remain unchanged.

**FRBR ISSUE 12 :** We discussed about different notions of work. We made it clear that the work conception is not necessarily the birth of the very first idea for a work, but can take place at a somewhat later stage (scope note to be modified – PLB's HW). We decided to add other examples for F27 work Conception (PLB's HW). Then we saw that a link is needed between F28 Expression creation and F27 Work Conception (PLB's HW: to add a statement in scope note for F28 in order to make it explicit that instances of F28 can be typified, e.g., F28 *P2 has type* E55 Type {major contribution}). Finally we decided to make a subtyping of R3 in order to introduce a vocabulary of types of contribution and to make a statement in the introduction about the concept of "a representative type of a contribution"

**FRBR ISSUE 14 :** We discussed about how to consider the relationship between a performance and the performed theatre play. Finally we concluded that a theater play is not a real plan, otherwise it would be impossible to distinguish between a (literary) Work realized in the theatrical text regarded as an instance of F25 Performance Plan, and an F20 Performance Work genuinely realized (R12) in an instance of F25. We decided to reformulate the proposal in issue 12 and to add a new subproperty of P16 for making the relationship between performance and theatre play more explicit.

**FRBR ISSUE 15 :** We decided to change the range of R14 from F2 Expression to E90 Symbolic Object for covering the case of instances of F24 Publication Expression which incorporate the signs (whether intended and meaningful or accidental and meaningless) produced in the course of the reproduction of a physical thing. (Scope note to be rephrased accordingly – PLB's HW)

**FRBR ISSUE 17 :** Pat will correct the examples.

**FRBR ISSUE 18:** PLB's proposal to typify the R64 property is rejected. Instead, we decided to add to the scope note a statement in order to specify that any instance of F52 Name Use Activity can be associated with an instance of E55 Type (through P2), e.g. "use of a pseudonym," "use of husband's last name (for a married woman)", etc. (PLB's HW).

**Superproperty of R57:** MD will refine a shortcut " *F38 Character.P94B was created by (has created):E65 Creation.P17 was motivated by (motivated): E39 Actor*" with restriction to specialization

**Discussion about FRBR tutorial:** Then Korina Doerr presented the FRBRoo tutorial. Recommendations by the FRBR-CRM SIG are the following:

- View for information science students
- Separate translation files
- All the content should be renewed
- Web application
- Two kind of promotions (1) for managers (2) for those that do the actual work (Maja will help on this)
- Two kind of levels (1) Overview and (2) detailed
- Multimedia interaction (Dominic Oldman will help in the design)
- Examples should be provided (Trond will help on this)
- Also help will be provided by Øyvind, CEO and Steve Stead with students
- FORTH will make a mailing list to send it to the whole group.
- Pieces of text will include comments on individual basis

**PRESSoo :** Patrick Le Boeuf presented PRESSoo. Comments or recommendations are: Some events have starting events (Z6-Z7), we should introduce a new property in CRM.

The properties Z6-Z7 would be more specific such as earliest known, starting event

A subclass of publication work specific to monographs is to be introduced in PRESSoo.

Discussing about continuation, we decided to make an issue for CRM for restricting transformation to physical things.

We decided that we approve this extension as compatible with both FRBRoo and CIDOC CRM, and that the authors of PRESSoo only have to fix a limited number of issues for it to be approved during the next meeting.

*Tuesday 22/10/2013*

### **UNIMARC and FRBRoo mapping.**

We started with Aline Le Provost's presentation. She presented how ABES (the French Bibliographic Agency for Academic and Research Libraries) map UNIMARC records to FRBRoo. She said that they need shortcuts and they need to create extensions since typing of properties is not possible in RDF. Also she proposed to combine FRBRoo with vocabularies (SKOS, DUBLIN CORE).

**Photographs:** Then we discussed about photographs. Several opinions discussed such as:

- The creation of photograph is a recording (by PLB)
- Is it reasonable to distinguish photos that represent an object or represent a scene from an activity? (by MD)
- The museums also treat photographs as objects. Also there are documentary art forms.
- Under the sense of semiotics photograph is the recording of light reflection in time (Øyvind). Then Martin said that the total of the scene still is reflected by a distribution of light. Also there are formal transformations which preserve the subject and basic features.
- The distinction is not that we did something someday but the processing of bits of an image is a subject of correlation between the physical objects (the reality) and the image.

In the discussion about the difference between digital and analog photographs, several opinions are presented such as:

1. The analog keeps the initial recording while the digital is not preserved. (Øyvind)
2. In digital provenances we can register the process. Then we have no distortion, since the process is recordable and the recovering is possible. (MD)

Then we made the note that since photographs can no longer be used for legal issues, the authenticity notion is no longer relevant. We agreed that the use of photos is mainly for documentary purposes as they record states of affairs. Photographs that are not created for documentary purposes are art objects, they are the result of creation events. Finally we decided the following actions:

- (a) To modify F26 Recording to include photographs (Øyvind, PLB)
- (b) To modify the scope note of F29 Recording Event, and to add a shortcut that describes the recording of an object (Øyvind, PLB)
- (c) To draft a statement as to how FRBRoo models photographs and animated images (Øyvind, PLB).

**FRBR CORE.** Martin presented the Final Report on EDM – FRBRoo Application Profile Task Force.

Martin focused on how easily Europeana extracted data from FRBRized records and the mapping was fast and automatic. The FRBR-CRM SIG agreed that it is a good starting point for FRBR CORE. Also the examples are very informative for tutorial purposes.

Then the SIG noted that this report is a political compromise between FRBRoo and Europeana and discussed how to take advantage of this. The SIG decided

1. To reuse this material in the framework of the FRBRoo tutorial
2. To determine what we have to demonstrate by enacting this as it is.
3. To show that the data in the Libraries is complex and cannot be exploited unless a sophisticated model is used
4. To make an rdf recommendation to present what we recommend as a harmonization group. We must be sure that the simplifications are valid.
5. The FRBR-CRM SIG has to review page 10 of this report.
6. We would make each point as an issue. Should these things be an integral part of FRBRoo or should they be used to define a core model? If we agree we need to check if this is sound and what will be the representative examples. Then in order to validate that rule we need a definition of the context, specifically we decided that we need the following:
  - a. Research questions on clustering
  - b. Research questions on aggregating results
  - c. Research questions to find related resources
  - d. Are these representative enough, do we need others?
7. Then we agreed that the context is depending on what data we have and what kind of use we will make.
8. FRBRized data can be extracted from catalogues that are not “natively” FRBRized. FRBR is the formalization of what should be in catalogues, independently from the technique that was used to produce them.
9. Finally we decided to regard this document as an exercise, to see what it is about. Dominic, Trond, Aline, Patrick will contribute and give some paragraphs. We need a homogeneous graphical representation. Context, purpose and a set of properties can serve as a subset of FRBR core. For doing this we need to take some concepts of FRBRoo and CRM and add some rules to imply FRBR and CRM properties. Then we have to prove the coverage. For the coverage we need a proposal by Maja, or Maja will describe as a procedure and the result will be a journal paper. It will be a document that we should approve as a group.

**Issue 10:** Then we discussed again about the proposed class material copy. We decided to check the restrictions of it and to think about the identification of a material copy. Should it be restricted to something produced through a production carrier event? Finally we decided this issue will remain open until the next meeting which will be held in National Archives in The Hague on March 31st.

