



## FRBR/CRM Harmonisation Meetings Consolidated Minutes

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## **First Meeting on FRBR/CRM Harmonisation (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.

## Second 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

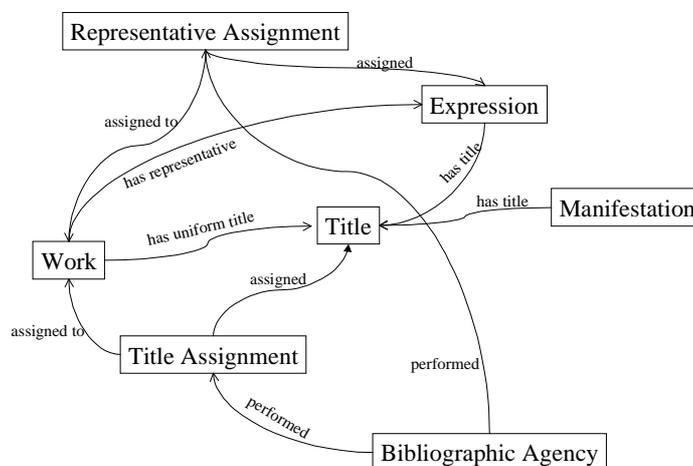
March 22nd.

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.

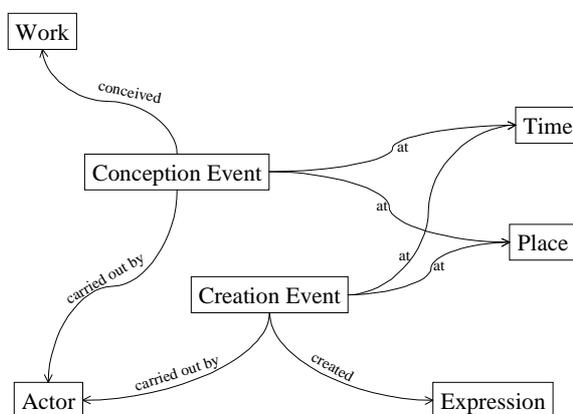
**Title of the Work** (FRBR Final Report §4.2.1, p. 33). This attribute is much trickier than it seems. In cataloguing practice, an instance of the Work entity may have two kinds of title: a uniform title, that is assigned by a cataloguing agency; and a "natural" (although the term is inappropriate) 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:



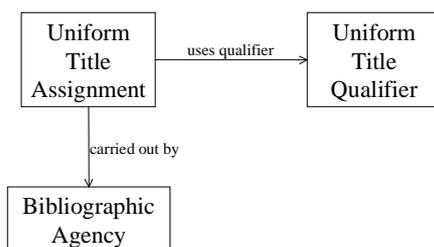
**Form of Work** (FRBR Final Report §4.2.2, p. 33). Stephen Stead proposes to reword that attribute: "**Constraining Super-Type of the Work**". The reasoning behind is that the function performed by the

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:

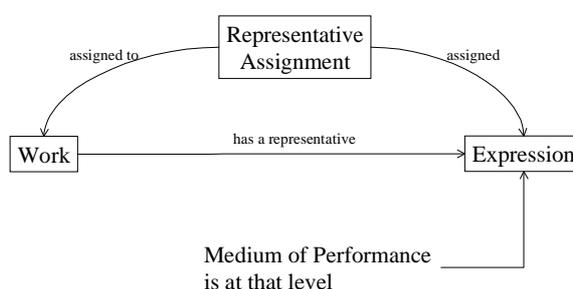


**Intended Termination** (*FRBR Final Report* §4.2.5, p. 34). Actually is a property of a Continuing Resource; to be modeled later. It seems not to be a property of the Work entity.

**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.

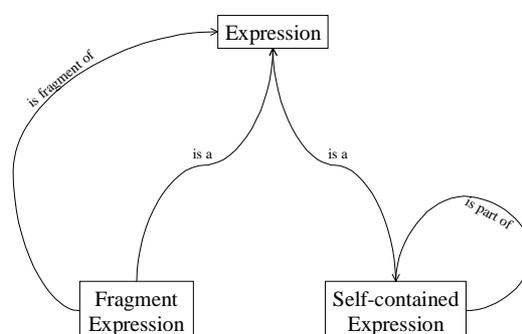
Inherent to the notion of work is the completion of recognizable outcomes of the work. Normally creators would characterize or one can recognize an outcome of a work as finished. These units, i.e. the Self-Contained Expressions, are regarded as the atoms of more complex work. A Self-Contained Expression 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:

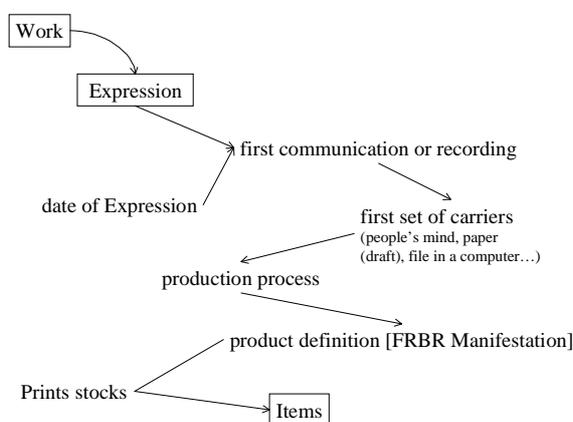


Expression attributes are examined one by one.

**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.

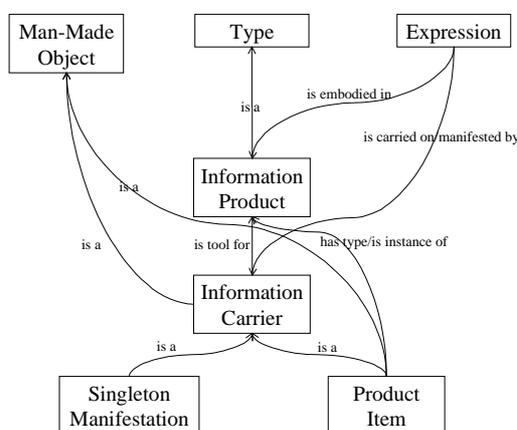
**Form of Expression** (*FRBR Final Report* §4.3.2, p. 36). The name of this attribute should be reworded: “**Type of the Expression**”, to be consistent with the rewording proposed for the Work form attribute. The “Type of the Expression” attribute has to be compatible with the Constraining Super-Type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

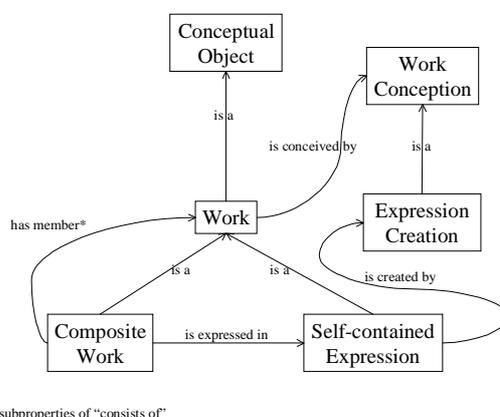
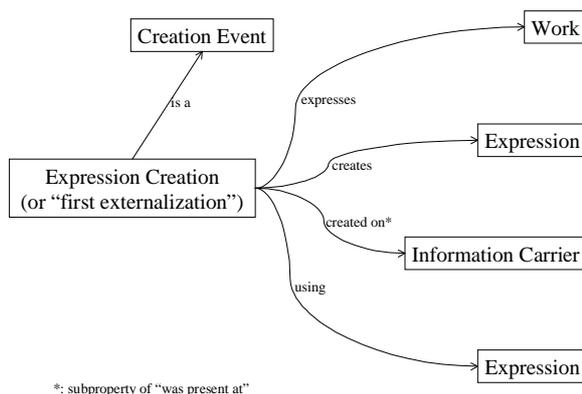
**Date of Expression** (*FRBR Final Report* §4.3.3, p. 36). This attribute can be expressed as two triples: An Expression (class) is created by (property) a Creation Event (class) at a (property) Time (class). But this is not sufficient. How can we know the date of the Creation Event for a given Expression? 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”

### Third 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 Tillet (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.

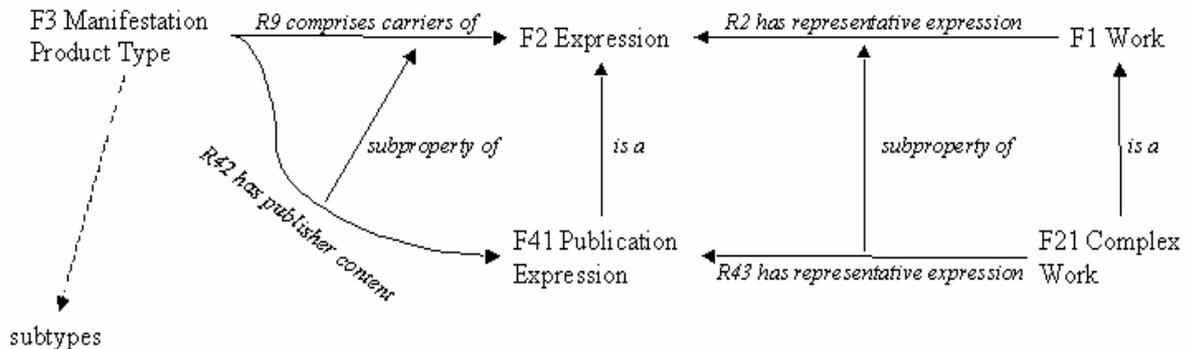
An Expression is defined to be fixed in time, it cannot evolve over time; only the Work can evolve over time. This is a deliberate ontological choice to substantiate the difference between Work and Expression..

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. **(For the CRM SIG: should the composition of identifiers by meaningful parts be described in the CRM?)**

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*

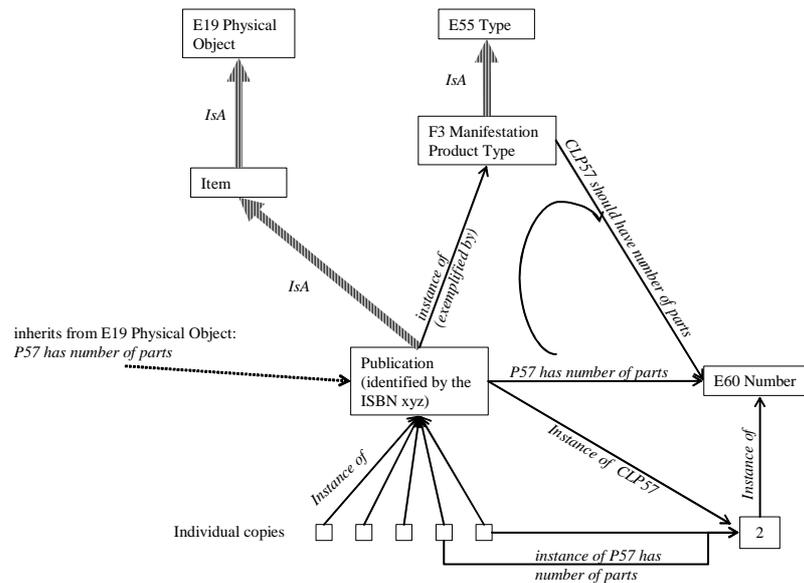
This was recognised as a Type:

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.

## Fourth 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 Goerz (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.

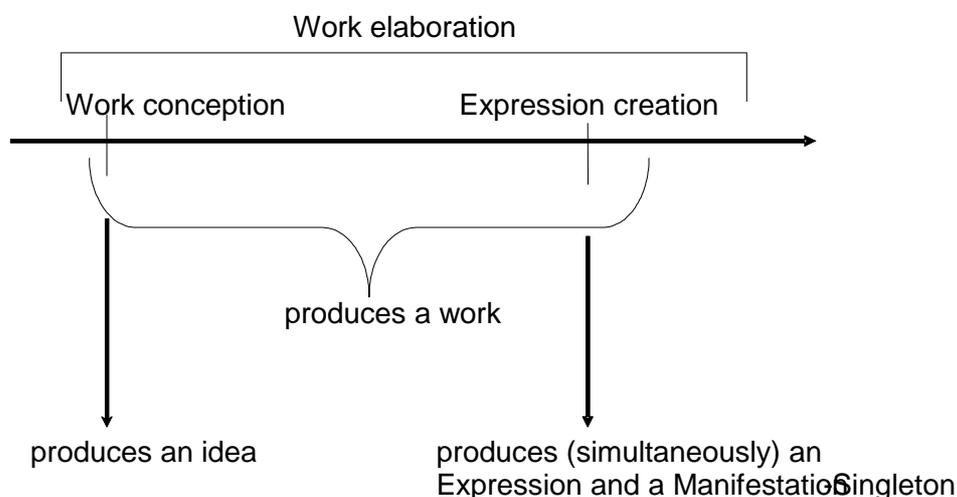
**Martin Doerr** agreed to that.

**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.

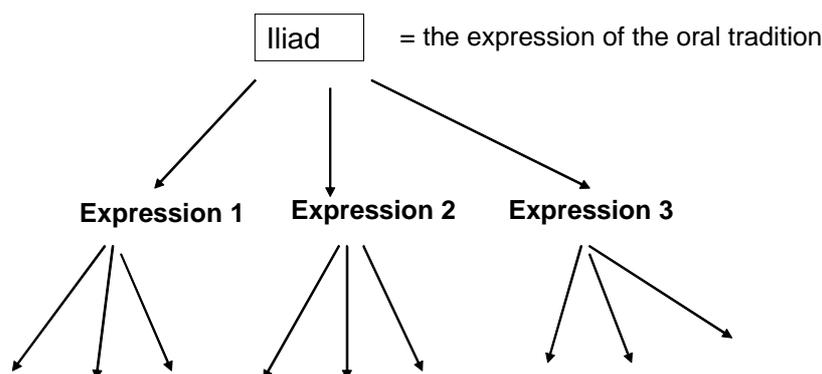
**Trond Aalberg** said that if the Group wants to model Expressions as different entities, it should not use *Work*.

**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.

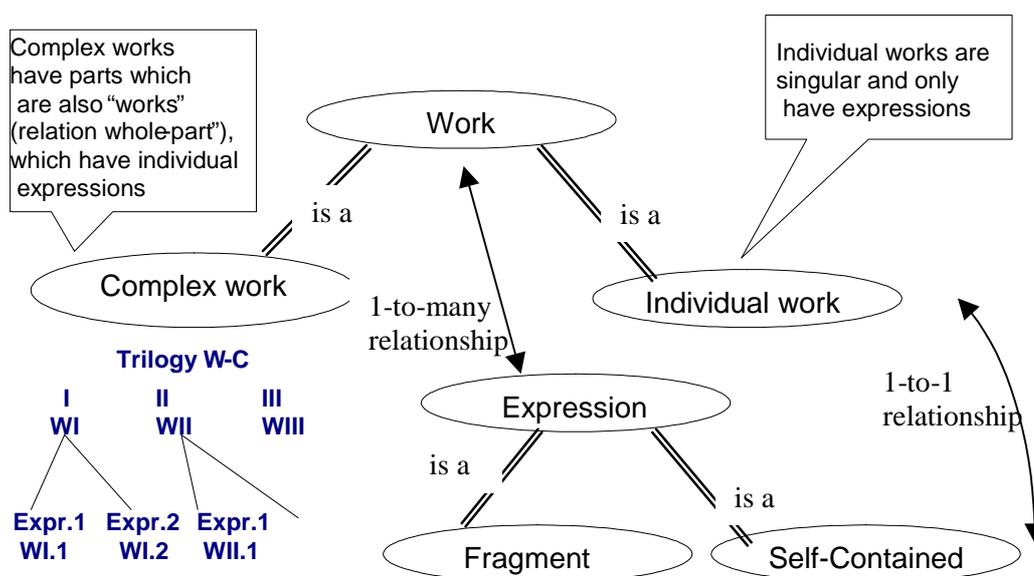
**Martin Doerr** asked Trond Aalberg if he believes that he can understand (the identity of) something, in case he knows its properties.

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*.

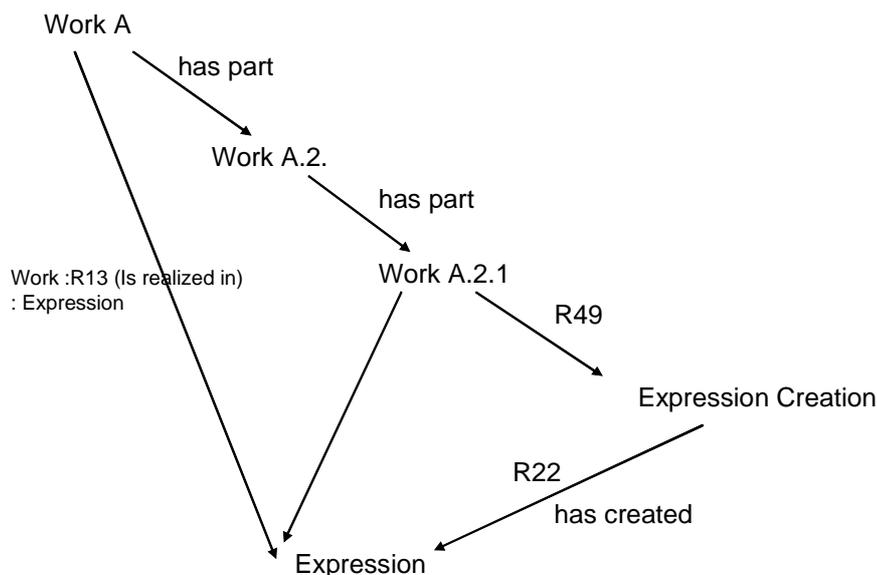
The question is in which sense something comes to existence by this process of *F31 Expression Creation*. Is *Expression Creation* a subclass of *Beginning of Existence*?

**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.

## **Fifth 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 Øre (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.

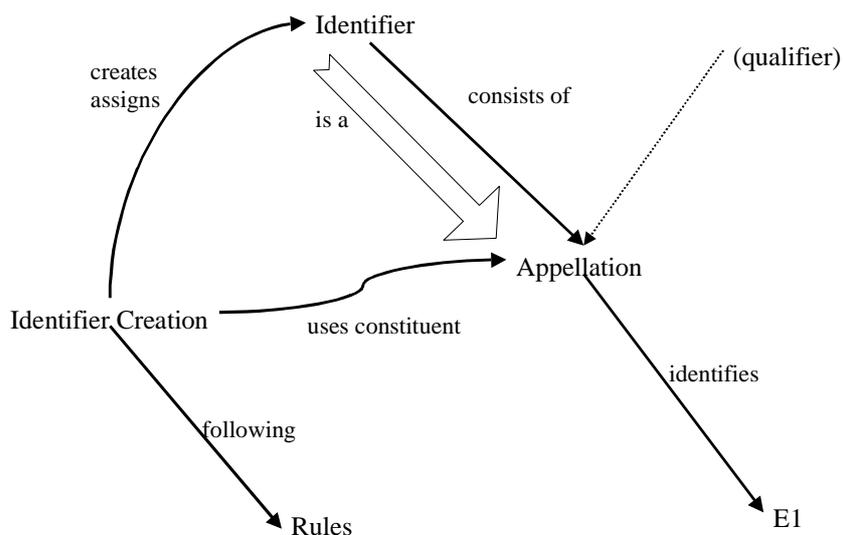
Can a Work be actually unfinished? So far, we took it for granted that an unfinished Work could be realised only through a F23 Expression Fragment; from now on, we build on the working hypothesis that expressions of unfinished works can be regarded as equivalent to Self-Contained Expressions. F20 Self-Contained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

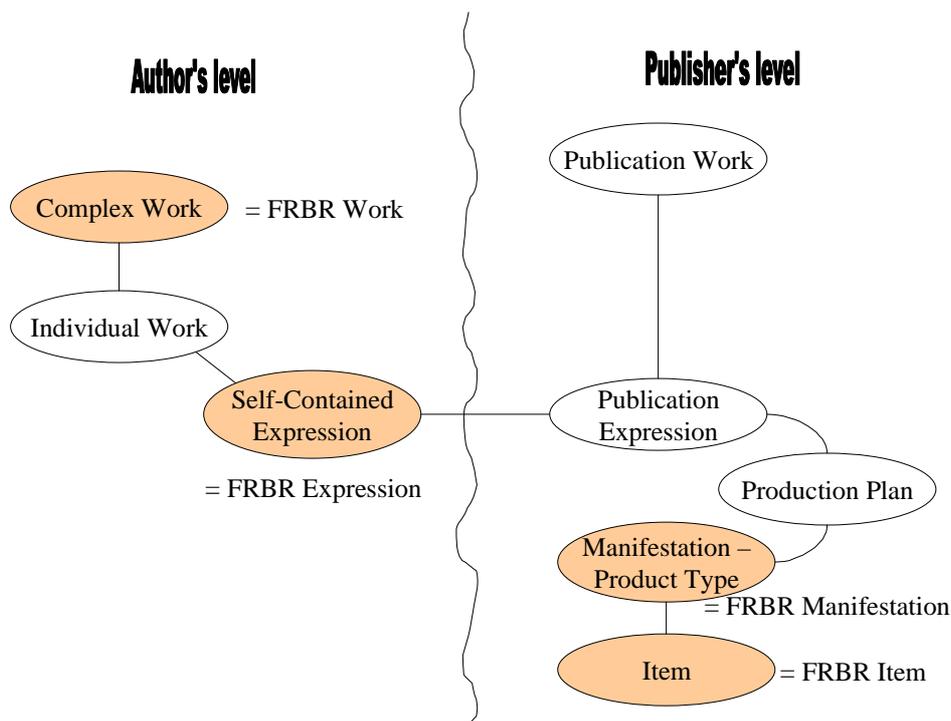
An Identifier is created in the course of an identifier assignment, but we make the decision to drop the distinction between Identifier Creation and Identifier Assignment.

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>:

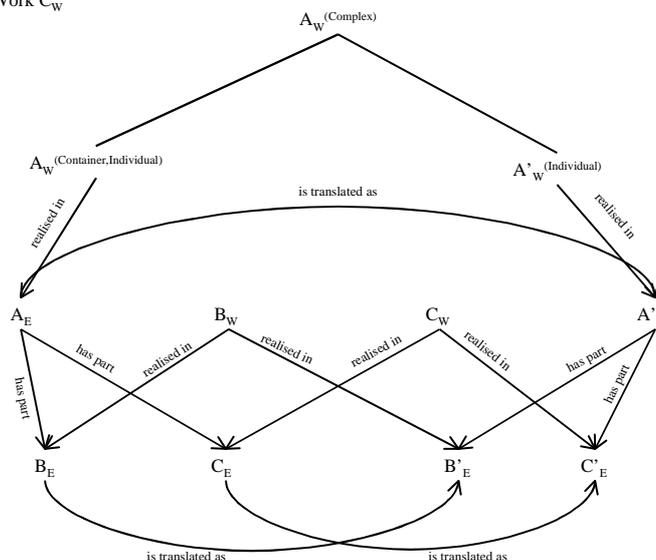


FRBR<sub>ER</sub> defines just 4 entities outside of their context; FRBR<sub>OO</sub> puts those entities back into their ontological context.

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.

**Sixth 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:**

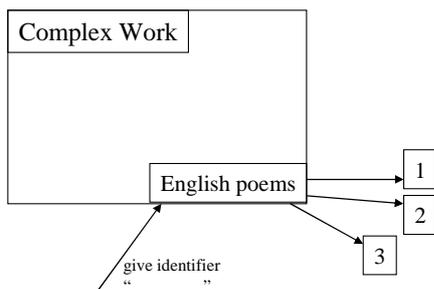
- a. Has to go out and transfer the examples.

**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**

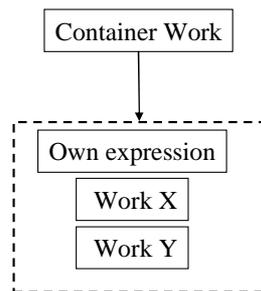
- a. We noted here that the whole thing is to preserve the expression
- b. "Copy event" is a specific case of production

**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)**

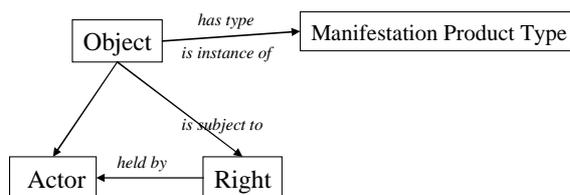
- a. A question here posed by Patrick was “how we can express the fact that a stereo is a kind of sound” and the answer was that we should make it explicit??

**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> <li>2. Will make the annotation document</li> </ol>
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> </ol>

		<p><b>9.</b> to discuss if a given expression has more than one representative manifestation Product type (19b)</p> <p><b>10.</b> to discuss if a given expression can have more than one representative Manifestation Singletons(20a)</p> <p><b>11.</b> More relevant examples are needed for R7(20b)</p> <p><b>12.</b> 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)</p> <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.

## Seventh 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 piaoanos+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

## **Eighth Meeting on FRBR/CRM Harmonization (Heraklion (Crete), ICS-FORTH, 25-27 October 2006); held in conjunction with a CIDOC CRM SIG Meeting**

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*

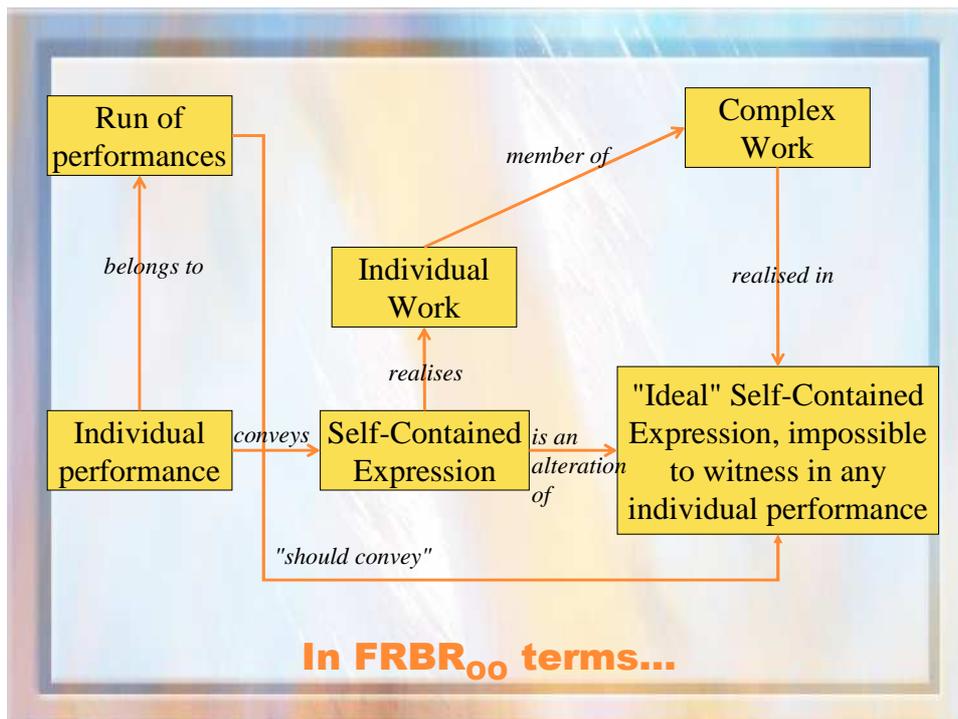
Martin Doerr gives a status report on CRM SIG activities:

- 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.

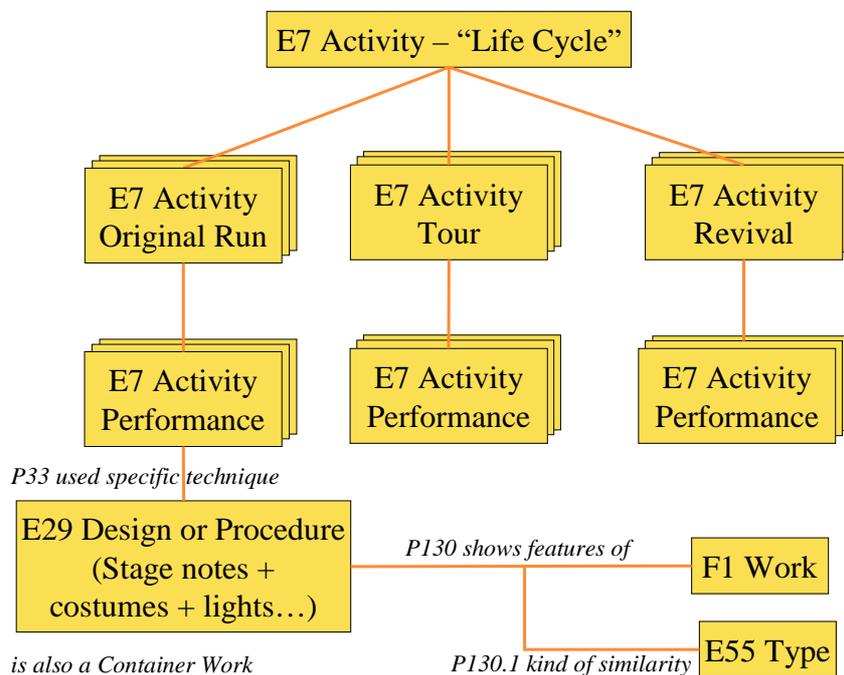
In addition, should a property named “memorised in” be created from E28 Conceptual Object to individuals? Steve Stead opines that we should deal with that only once we have dealt with oral traditions in FRBRoo.

### *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?

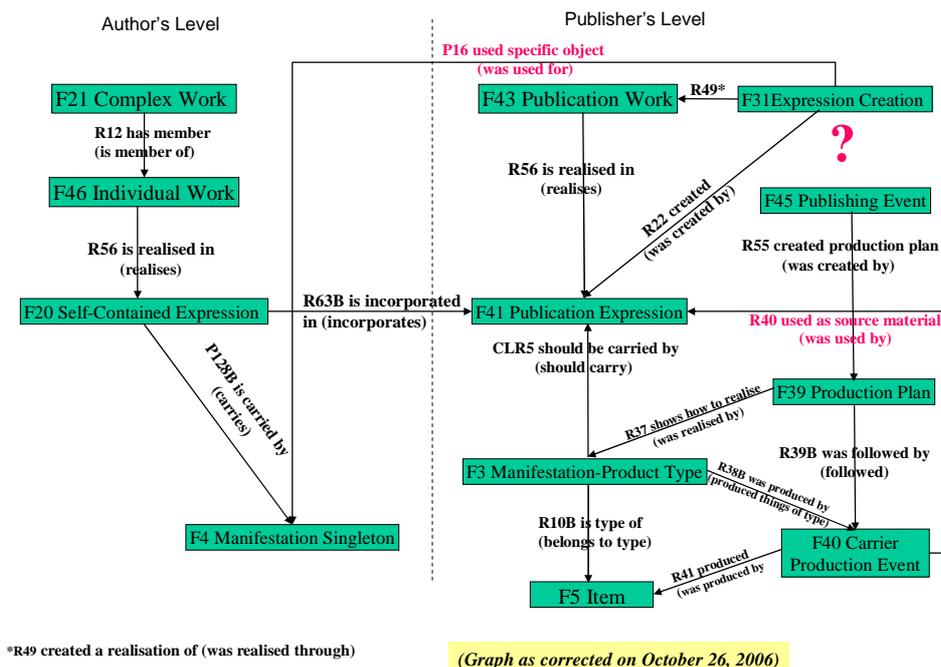
Martin Doerr opines that such issues can be covered by FRBRoo.

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.

## **Ninth 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 Rinear (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

## **Tenth 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?

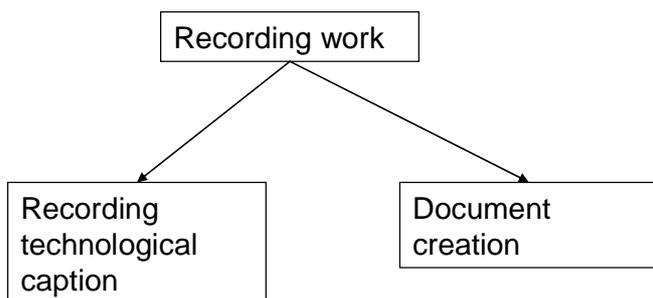
We see three aspects of Recording event: (a) the Reproduction, (b) the present preservation, (c) the Recording process.

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, Chrissoula'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 130 FAQ required to deal with availability of the standard

### *Discussion*

### *Outcome of discussion*

Add this FAQ to the current list and to ask Nick Crofts for the answer. Martin will send an email to Nick Crofts

## 11. Issue 132 Rewrite scope note of E51 Contact Point

### *Discussion*

The subject of the discussion was “how to describe the change of addresses and contact points”. Argument to this discussion was that the existence of a contact point requires the existence of a planned activity. Contact point is an identifier associated with a service or a planned activity.

### *Outcome of discussion*

The scope note for E51 Contact Point has to be rewritten in order to show that an instance of E51 Contact Point is an identifier associated with a service or a planned activity, and that E51 Contact Point is therefore a subclass of E41 Appellation.

Martin Doerr will redraft it up to the next meeting

## 12. Issue 133 Rewrite scope note of E54 Dimension

### *Discussion*

The point was here that dimension represents the true dimension of a particular thing. The P43 has dimension (is dimension of) which is one to many dependent and E54 Dimension pertains to one thing only.

We assume (except the case of a precision value) that all the values are overlapping approximations. Two examples of E54 are wrong because they give generic dimensions.

There are reasons to assume the dimension is not an ontological unit, because it depends on one particular thing.

Nicola Guarino describes in DOLCE abstract spaces of numerical values such as points in the space of colors. So the question is if we regard respective measurements as dimensions or places in abstract spaces. A counterargument is that such “places” are based on the measurement of other, primary properties of different nature.

### *Outcome of discussion*

We make changes to the text: "is thought to be" to “ is regarded as”.

We decide to rewrite the phrase "The properties of the class E54 Dimension allow for expressing the numerical approximation."

We agreed that the examples are wrong, should imply the measured object.

We should revise the definition of "number".

*Stephen Stead will formulate a new proposal to include the notion of number by the end of August.*

### 13. Issue 134 Change scope note of E3 Condition State

*Discussion*

*Outcome of discussion*

We change the text: the pronoun "It" is replaced with "An instance of this class."

### 14. Issue 135 Change scope note of E4 Period

*Discussion*

The remark here was that the phrase "may be" was not right because it gives the sense of modality.

*Outcome of discussion*

We change the scope note of E4 and we delete the phrase : "Artistic style may be modelled as E4 Period".

### 15. Issue 136 Change the phrase "This property describes..."

*Discussion*

*Outcome of discussion*

Add the introductory sentence of scope notes for all properties.

Mathew Stiff will go over all properties taking into account Patrick's remarks about "associates..." up to the next meeting.

### 16. Issue 137 Change example of P1 is identified by (identifies), 138 change example of P3 has note

*Discussion*

*Outcome of discussion*

We should type all citations of strings and appellations within double quotes.

Matthew Stiff will revise them up to the next meeting.

### 17. Issue 139 Change the example of property P5 consists of (forms part of)

*Discussion*

The point here was that the example should be changed because it describes an extended event rather than a condition state.

*Outcome of discussion*

The example is wrong. Chryssoula will give a better example up to the next meeting.

## 18. Issue 142 "P69 is associated with" can be used to describe sequences of procedures

### *Discussion*

We looked for examples for associations of procedures. "P69 is associated with" is a candidate property to describe sequences of procedures. Is there a need to specialize into relationships describing parts of a design versus sequences of a procedure? Sequences of procedures in this sense are plans, and never factual. Factual sequences are documented as instances of "E7 Activity". To be clarified if this needs an amendment to the scope note, or if it is an FAQ.

### *Outcome of discussion*

We change the text and we introduce P69.1 has type to describe association types.  
Stephen Stead will provide evidence that P69 has type, up to the next meeting.

## 19. Intermediate class between Conceptual Object and Information Object and issue 144 P16 used specific object (was used for) in R26 used constituent(was used in)

### *Discussion*

Patrick gave a presentation with title "Subject relationships in FRBROO and their implication on CIDOC CRM" to address the issues

1. Intermediate class between Conceptual Object and Information Object
2. Appellation as a subclass of String

After the presentation we discuss about the substance of Appellation and if the appellation has alternative form and history. Also we changed in the SIS base the Appellation and we put Appellation isA Information Object in order to check the consequences.

In parallel we examined the Issue 144 according to which E7 Activity. P16 used specific object (was used for):E70 Thing should be superproperty of F33 Identifier Assignment.R26: F13 Name, and this implies: that E41 Appellation isA E70 Thing!! In order to solve this ambiguity we should consider E41 Appellation isA Information Object.

### *Outcome of discussion*

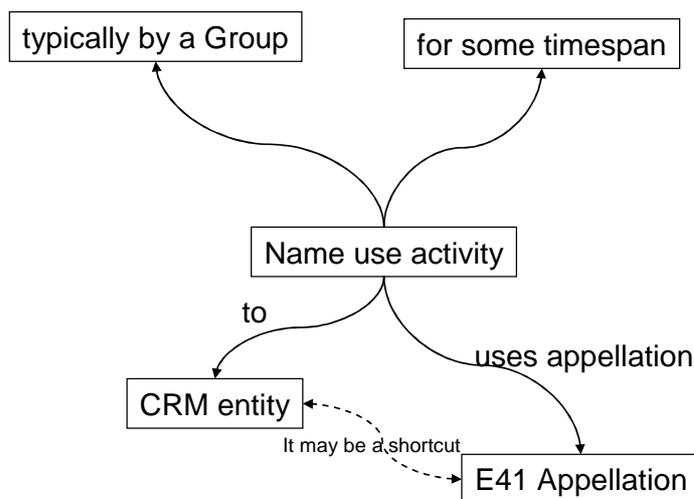
We consider E41 Appellation IsA E73 Information Object and we have to rewrite the scope note. Patrick will make a proposal to express the new substance of Appellation and will also look at P139 has alternative form if it is a symmetric property on not by end of August / beginning of September.

## 20. Issue 147 Check if there is a need for a generalized class to identify usage

### *Discussion*

We came back to the scope of usage and date of usage of a name (motivated by the mapping of FRAD, attributes of name: dates of usage, scope of usage ...) and our previous remark that these pertain to the activities dealing with the names and not the names themselves. Under this view we discuss if we need a generalized class in CRM to identify usage?

We observed that there is nothing in CRM that makes it clear that a name is connected with a given time span, clear. We made the following schema:



### *Outcome of discussion*

We need a Name use activity. Martin Doerr will make a proposal up to the next meeting.

## 21. Issue 145 "shows how to realise" a plan

### *Discussion*

The point here was the missing relationship “shows how to realise” a plan from CRM. Martin Doerr argues that P103 was intended for (was intention of) is sufficient to describe the relation between E29 Design or Procedure and the intended outcome. Should we make distinctions between procedures for specific things and procedures for activities? The question of how the kind of activity is connected with the kind of things should be dealt with through Meta CRM.

### *Outcome of discussion*

P103 was intended for (was intention of) is sufficient to describe the kind of activity the instance of E29 pertains to. The question of how the kind of activity is connected with kinds of things produced is for the “metaCRM” (categorical statement).

## 22. Issue 152 Generalization of E30 Right

### *Discussion*

In order to model correctly in FRBRoo the attribute "access restrictions" defined in FRBRER for the Manifestation entity, we might need a generalisation of E30 Right in CIDOC CRM.

### *Outcome of discussion*

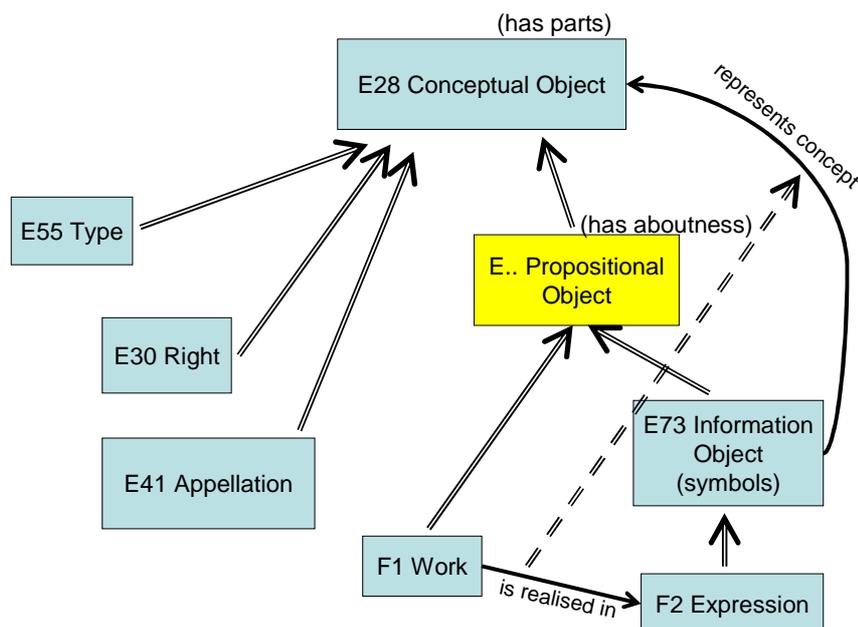
This is no longer regarded as an issue by the SIG: the current version of the scope note of E30 Right is deemed sufficient to cover access rights.

## 23. Issue intermediate class between E28 Conceptual Object and E73 Information Object

### *Discussion*

Then the SIG addresses the issue of subject relationships. Should we have an intermediate class in CIDOC CRM between E28 Conceptual Object and E73 Information Object, so that we could solve the current conflict between the modelling of subject relationships in FRBRER and in CIDOC CRM, which results in an impossibility to model them in FRBRoo?

Stephen Stead makes the following proposal:



Under this view F1 Work has aboutness as well as F2 expression has aboutness. This situation represents a systematic problem of modelling alternative granularity.

#### *Outcome of discussion*

We made changes in CRM text property P3 has note. The scope note of P3 was rephrased in the following manner: "This property is a container for all informal descriptions about an object that have not been [instead of: "cannot be"] expressed in terms of CRM constructs."

The group will come back to this issue during the meeting, if there is some time left.

Martin Doerr and Dolores Iorizzo volunteer to draft a short text on this issue.

## 24. A model for constructing appellations

### *Discussion*

In this session Patrick made a presentation about the model developed in FRBRoo for constructing normalised appellations. We discussed about to put F33 Identifier Assignment in CRM and to generalize the E42 Object Identifier to be E42 Identifier.

Stephen remarked that Identifier is a good construct but it should be represented by an assigning activity which says for whom it is preferred. An argument was that the identifier assignment has type.

The group made the proposal for collapsing E15 to F33 and E42 to F14.

Should Identifier Rules be regarded as a specialisation of E29 Design or Procedure?

### *Outcome of discussion*

The SIG accepted the model developed in FRBRoo for constructing normalised appellations and at the price of only minimal changes in CIDOC CRM we decided (1) no specific class is defined for Identifier Rule (this is covered by E29 Design or Procedure), (2) E42 Object Identifier is redefined as E42 Identifier (not just for physical objects), (3) E15 Identifier Assignment is declared as equivalent to F33 Identifier Assignment in FRBRoo. We had to revise the scope notes.

Martin should make a proposal up to the end of this meeting.

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## 25. Issue on constructing normalised appellations (continued)

### *Discussion*

Martin Doerr presented the revisions made overnight.

### *Outcome of discussion*

The scope note for E42 Identifier is changed. The scope note of E15 Identifier Assignment is adapted according to the scope note for F33 Identifier Assignment (with some modifications) of FRBRoo. Some changes are made in the declaration of P48 has preferred identifier (is preferred identifier of). P36 registered (was registered by) and P47 is identified by (identifies) are deleted. A new property is created: E15 Identifier Assignment. P142 used constituent (was used in): E41 Appellation

## 26. 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*

## 27. Issue 149: modelling family relations

### *Discussion*

The document sent by Christian Emil Ore, who could not attend the meeting, is examined. Smiraglia and Martin made the comment that there is a problem to associate persona, as seen as evidence of actors, to correct actor. After discussing we accepted to add two classes and four properties in CIDOC CRM:

E85 Joining (subclass of E7 Activity)

P143 joined (was joined by) E39 Actor

P144 joined with (gained member by) E74 Group

E86 Leaving (subclass of E7 Activity)

P145 separated (left by) E39 Actor

P146 separated from (lost member by) E74 Group.

### *Outcome of discussion*

Martin Doerr drafted the scope notes for all these classes and attributes by the next day. Changes will have to be made in the scope note for E74 Group in order to mention that we interpret families as groups, and that it is possible for a group to have members or not. Martin will change the scope note of E74.

## 28. Issue 153 Activity without products

### *Discussion*

Should the scope of E29 Design or Procedure 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.

### *Outcome of discussion*

The scope note of E29 Design or Procedure is modified in order to include “how to do something in general”.

## 29. Interesting Features of the CIDOC CRM

### *Discussion*

Stephen Stead presented his slideshow on "Interesting features of the CIDOC CRM". The questions here was how we measure distance or how we can consider distance as duration of an activity (mileage) and if we only consider measuring things how we determine F-stop.

Stephen proposed that we need something to measure process and dimension of process. Then the group discussed about special and spatiotemporal distance and we accepted that visual items include measurements.

### *Outcome of discussion*

Two new issues are introduced about measuring activities, and creating a class for aural items (on the same pattern as E36 Visual Item). Stephen should find examples for these issues by end of September.

## 30. Digitization process

### *Discussion*

The question was “The measurement ends up to a dimension?”

Copying text by someone and copying text by a machine are the same? Also rendering a text has a mechanical interpretation. This poses a question about dimension and its nature. Martin suggested to see the other models what they support, to extend the notion of dimension or to modify the definition of dimension and to put on the website and to observe the reactions.

Stephen said we should modify the definition of dimension to include things like digital images, points in coloured space, vectors etc. Also we need to review this with DOLCE.

We continued the discussion about “how we combine the notion of FRBR with provenance?” and “how library deals with the recursive provenance?”. Then we tried to find examples for the provenance from “scientific work” notion.

### *Outcome of discussion*

Finally we decided

(1) to extend the definition of dimension to include things like digital images, points in coloured space, vectors etc and to produce cases and examples. Stephen will rewrite the definition and give examples and then we will circulate these by end of September

(2) Martin will check what DOLCE says on such matters

(3) Richard Smiraglia will examine the notion of scientific work and will send us an analysis about scientific work by end of September

(4) Stephen will give to FORTH his example in jpg and xml and FORTH will put his example in the Wiki on the website by end of September.

## 31. Curation Activity

### *Discussion*

Lina Boundouri from IONION university showed slides about a mapping from the Dublin Core Collection Application Profile to CIDOC CRM . A discussion took place about how we declare in

CIDOC that a collection is the result of a specific development and management plan ? Lina proposed to add to CIDOC a new entity for a Curation activity.

*Outcome of discussion*

The group decided that we should have a curation activity. It is proposed to create the following :  
E87 Curation Event

P147 curated (was curated by) E78 Collection

IONION university should send by email the scope note and examples about the E87 and P147 by end of August.

### 32. Issue 146: The property *P139 has alternative form* should have its own "has type" property

*Discussion*

*Outcome of discussion*

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. Property P139.1 is therefore created. Also, the scope note for P139 is rewritten.

### 33. Issue 150: The scope note of E33 Linguistic Object

*Discussion*

*Outcome of discussion*

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. The first sentence of paragraph #2 of the scope note for E34 Inscription is added to the scope note for E33 Linguistic Object.

### 34. Issue 151: Specialization of "P1 is identified by" for E75 Conceptual Object Appellation

*Discussion*

The point here was if we need a specific property (subproperty of P1) between E75 Conceptual Object Appellation and E28 Conceptual Object?

*Outcome of discussion*

We created a new property P148 is identified by (identifies) from E28 Conceptual Object to E75 Conceptual Object Appellation.

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### 35. Issue 126: Explanation of Allen Operators

*Discussion*

Mathew Stiff presented the documentation explaining Allen's Temporal Relationships.

*Outcome of discussion*

We decided to place this document to the CRM website. FORTH will do it up the end of August.

## 36. E74 Group

### *Discussion*

The group reviewed Martin's scope note about E85 Joining (subclass of E7 Activity)  
 P143 joined (was joined by) E39 Actor  
 P144 joined with (gained member by) E74 Group  
 E86 Leaving (subclass of E7 Activity)  
 P145 separated (left by) E39 Actor  
 P146 separated from (lost member by) E74 Group.  
 Also we reviewed E74 scope note and the P107.

### *Outcome of discussion*

We should introduce into the scope note for P107 the fact that it is a shortcut of the path through P144 and P143. Indeed the P107 can also be inferred from P146 P145.

## 37. 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.

## 38. Presentations

### *Discussion*

In this session the following presentations took place:

1. Matthew Stiff made a presentation on "The environmental information programme", explaining why the Centre for Ecology and Hydrology is interested in using the CIDOC CRM.
2. Gordon McKenna made a presentation on MDA and SPECTRUM.
3. Keith May made a presentation on the English Heritage's projects with semantic ontologies.

### *Outcome of discussion*

## 39. 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.

## 40. 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.

## 41. Subject relationships, Conceptual Object, Information Object

### *Discussion*

We need to reorganize the conceptual object level.

### *Outcome of discussion*

The discussion is postponed. Martin Doerr suggested that the SIG evaluate all the consequences of the following structure:

