Modeling versions of KOS with FRBR (with a short introduction to FRBR consolidation)

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Progress in NKOS
The First NKOS Workshop at ICADL
December 9, 2015
The FRBR family models: main entities and relationships

1. FRBR and KOS

Modelling versions of a KOS

• Changes over time
• Different authors
• Derived products
Versions of a classification system

-- Using DDC as an example
**WEMI**

**WORK**: a distinct intellectual or artistic creation

**EXPRESSION**: intellectual or artistic realization of a *work* in the form of alpha-numeric, musical, or choreographic notation, sound, image, object, movement, etc., or any combination of such forms

**MANIFESTATION**: physical embodiment of an *expression* of a *work*.

**ITEM**: a single exemplar of a *manifestation*. 
Work and Expression

• The essence of Work is ideas
• The essence of Expression is signs (expressing ideas)

• Work as cultural construct
• Work as clustering mechanism

• Confirmed by user research
1. What is the “Work”? 
   – Is it the system as a whole, or an edition of the system?
   – Does this vary by system to be modelled?

2. How should the entities *expression*, *manifestation* and *item* be applied to KOS?
When dealing with multiple versions ...

Classification as work

Edition as work
Relationships can be made explicit
Using ASIS&T Thesaurus as an example

- ASIS Thesaurus of IS and Librarianship - English
- 2nd edition, 1996 English
- 3rd Edition, 2005 English
- 3rd edition French
- 3rd edition Arabic
- 3rd edition Spanish
- 3rd edition German

embodied in:
- CD ROM database
- XML file
- Printed edition
- SKOS Linked Data
- Web reproduction

realised in:
NKOS domain model, based on FRBR
2. FRBR Consolidation

3 distinct models, needing to be used together

- FRBR RG project since 2010
- Consolidation Editorial Group, 2013-

FRBR-Library Reference Model (LRM) (draft)
Main differences (examples)

• Scope/focus
• User tasks
• Person (FRBR vs. FRAD)
• Subject relationship (attribute in FRAD)
• Appellation entities (FRAD and FRSAD)
• ...
Main goals

- High-level conceptual model
- Expressed in entity-relationship framework
- Framework that can be expanded consistently
- Work informed by
  - Research with users
  - FRBRoo and CIDOC CRM
  - Experience with different implementations of FRBR, FRAD, FRSAD
  - Semantic Web and Linked Data environment
User Tasks

Find
Identify
Select
Obtain
Explore

Tasks reflect the scope of the model

Confirm end-user focus
No library internal processes reflected in the tasks

Reworded definitions
## Entities (former group 1)

<table>
<thead>
<tr>
<th><strong>Work</strong></th>
<th><strong>Expression</strong></th>
<th><strong>Manifestation</strong></th>
<th><strong>Item</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The intellectual or artistic content of a distinct creation</td>
<td>A distinct constellation of signs conveying intellectual or artistic content</td>
<td>A set of all carriers that are assumed to share the same characteristics as to intellectual or artistic content and aspects of physical form</td>
<td>A physical object carrying signs resulting from a production process and intended to convey intellectual or artistic content</td>
</tr>
</tbody>
</table>
Entities (former group 2)

Agent
An entity capable of exercising responsibility relationships relating to WEMI

Collective Agent
A gathering or organization of persons bearing a particular name and acting as a unit

Person
An individual human being
Entities (FRSAD)

Res (i.e. Thing)

Any entity in the universe of discourse

Renamed from FRSAD:Thema

Redefined without reference to the subject relationship

Top entity, all others are subclasses of it
Entities (naming)

Nomen

A designation by which an entity is known
New Entities

Place
   A given extent of space

Time-span
   A temporal extent having a beginning, an end and a duration
Attributes

- Reduced form- or format-specific attributes
- NOT an exhaustive listing of possible attributes
- Implementors can expand by adding the attributes that are needed
Work and Expression Attributes

• Replaced by relationships, such as:
  – to Nomen: Title
  – to Place: Place of ..., Place of origin
  – to Time-span: Date of ...
  – to Agent: Creator
  – to Res: subject relationship (Work only)
Core relationships (primary in FRBR)

The same as in FRBR:

<table>
<thead>
<tr>
<th>Domain</th>
<th>Forwards name</th>
<th>Reverse name</th>
<th>Range</th>
<th>Cardinality</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORK</td>
<td>is realized through</td>
<td>realizes</td>
<td>EXPRESSION</td>
<td>1 to M</td>
</tr>
<tr>
<td>EXPRESSION</td>
<td>is embodied in</td>
<td>embodies</td>
<td>MANIFESTATION</td>
<td>M to M</td>
</tr>
<tr>
<td>MANIFESTATION</td>
<td>is exemplified by</td>
<td>exemplifies</td>
<td>ITEM</td>
<td>1 to M</td>
</tr>
</tbody>
</table>
Appellation relationship

<table>
<thead>
<tr>
<th>RES</th>
<th>has appellation</th>
<th>is appellation of</th>
<th>NOMEN</th>
<th>M to M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
Responsibility relationships

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Agent</th>
<th>Relation</th>
<th>Manner</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORK was created by</td>
<td>created</td>
<td>AGENT</td>
<td>M to M</td>
<td></td>
</tr>
<tr>
<td>EXPRESSION was created by</td>
<td>created</td>
<td>AGENT</td>
<td>M to M</td>
<td></td>
</tr>
<tr>
<td>MANIFESTATION was created by</td>
<td>created</td>
<td>AGENT</td>
<td>M to M</td>
<td></td>
</tr>
<tr>
<td>MANIFESTATION is distributed by</td>
<td>distributes</td>
<td>AGENT</td>
<td>M to M</td>
<td></td>
</tr>
<tr>
<td>MANIFESTATION was produced</td>
<td>produced</td>
<td>AGENT</td>
<td>M to M</td>
<td></td>
</tr>
<tr>
<td>ITEM is owned by</td>
<td>owns</td>
<td>AGENT</td>
<td>M to M</td>
<td></td>
</tr>
<tr>
<td>ITEM was modified by</td>
<td>modified</td>
<td>AGENT</td>
<td>M to M</td>
<td></td>
</tr>
</tbody>
</table>
Other important relationships

<table>
<thead>
<tr>
<th>WORK</th>
<th>has as subject</th>
<th>is subject of</th>
<th>RES</th>
<th>M to M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>RES</th>
<th>has association with</th>
<th>is associated with</th>
<th>PLACE</th>
<th>M to M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>RES</th>
<th>has association with</th>
<th>is associated with</th>
<th>TIME-SPAN</th>
<th>M to M</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
WORK to WORK Relationships

WORK is part of (has part) WORK

WORK succeeds (precedes) WORK

WORK accompanies or complements (is accompanied by or complemented by) WORK

WORK is inspiration for (is inspired by) WORK

WORK is a transformation of (was transformed into) WORK
Next steps

• CEG to complete post-IFLA 2105 (Cape Town) editorial tasks
• Full draft to be reviewed by FRBR RG, Cataloguing, C&I and Bibliography Sections
• If signed off, hold a world-wide review in early 2016
• Consider responses and integrate …
• Back to FRBR RG for IFLA 2016 (Columbus)
• Final approval in late 2016?!
THANK YOU

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