



# IFLA

# Library Reference Model

---

WHAT AND WHY?

Chris Oliver

University of Ottawa Library



International Federation of  
Library Associations and Institutions

## IFLA Library Reference Model

A Conceptual Model for  
Bibliographic Information



<https://www.ifla.org/publications/node/11412>

Pat Riva, Patrick Le Bœuf, and Maja Žumer

Consolidation Editorial Group  
of the IFLA FRBR Review Group

Definition of a conceptual reference model to provide a framework for the  
analysis of non-administrative metadata relating to library resources

**August 2017**

Revised after world-wide review  
Endorsed by the IFLA Professional Committee

As amended and corrected through  
**December 2017**

available at the IFLA website:

*Current IFLA Standards*

# Outline

---

Set the stage

Consolidating 3 models: what does this entail?

What are some of the major changes and why?

- a) granularity
- b) resolving contradictions
- c) modelling for the current technological environment
- d) openness to different descriptive practices: manifestation statement
- e) incorporating research into user experience: representative expression
- f) solving the aggregates debate

# IFLA LRM = high-level, conceptual model

---

“the model seeks to reveal the commonalities and underlying structure of bibliographic resources” (LRM 2.1)

- to provide a framework for a shared understanding –
- the nature of bibliographic information
  - how bibliographic information fits together
  - as an IFLA standard, LRM expresses international agreement about the structure of bibliographic information

# IFLA LRM

---

→ a starting point for ...

- the design of real life applications
- data models that refine and extend the model
- data interoperability among communities with different descriptive traditions and practices (library and beyond)
- designing cataloguing codes
- optimizing for linked data

# Where does IFLA LRM come from?

---

- IFLA LRM consolidates the 3 IFLA bibliographic conceptual models:

**FRBR**      Functional Requirements for Bibliographic Records  
**1998**

**FRAD**      Functional Requirements for Authority Data  
**2009**

**FRSAD**    Functional Requirements for Subject Authority Data  
**2011**

# LRM “evolutionary, not disruptive”

Pat Riva, Lectio Magistralis 2018

---

- IFLA LRM stays true to underlying concepts, framework and logic of 3 FR models

*for example*, key entities remain at the core:

**work**

**expression**

**manifestation**

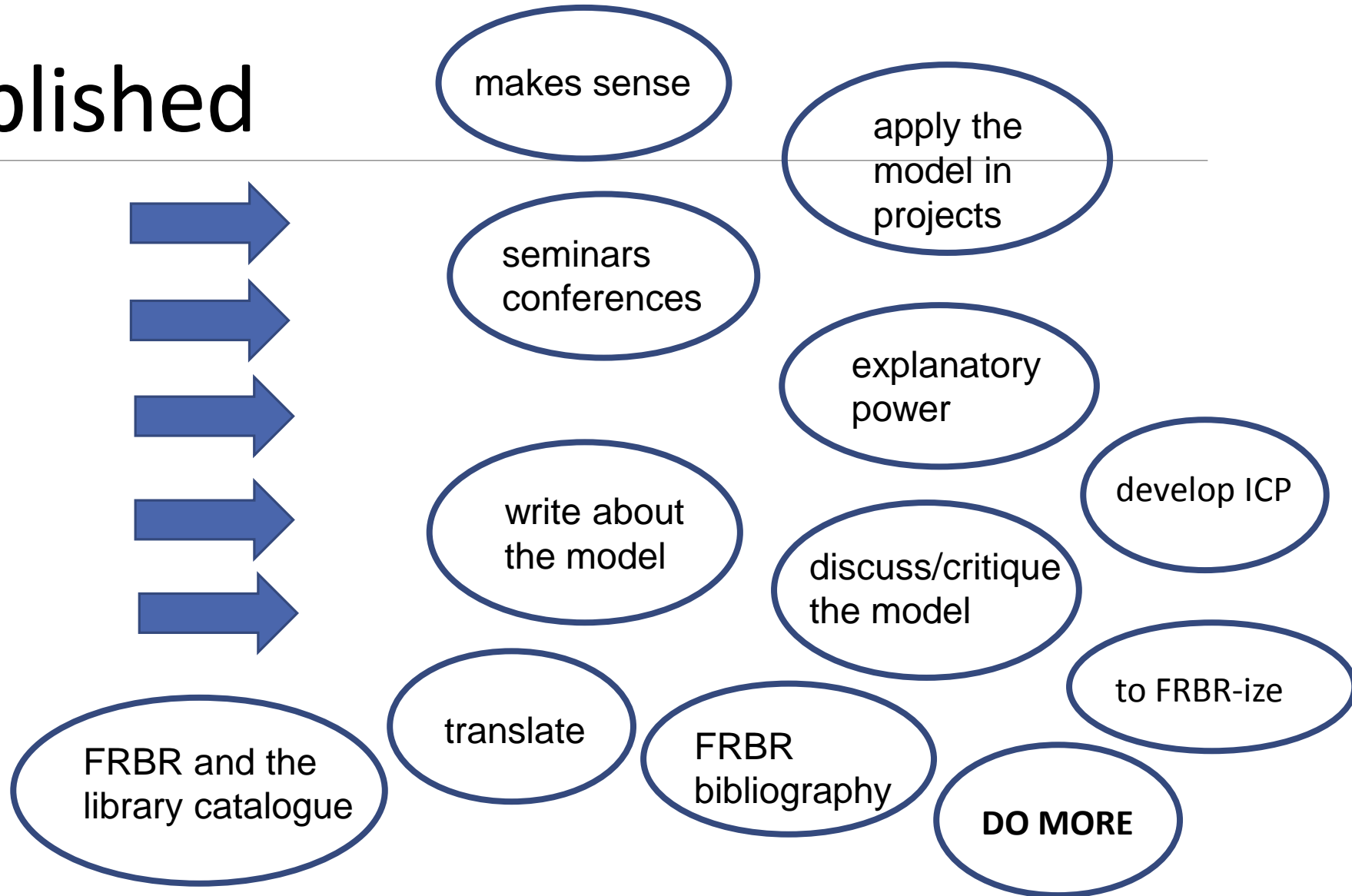
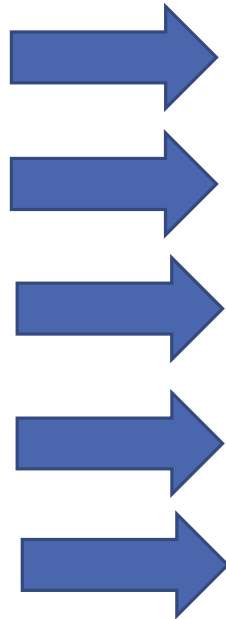
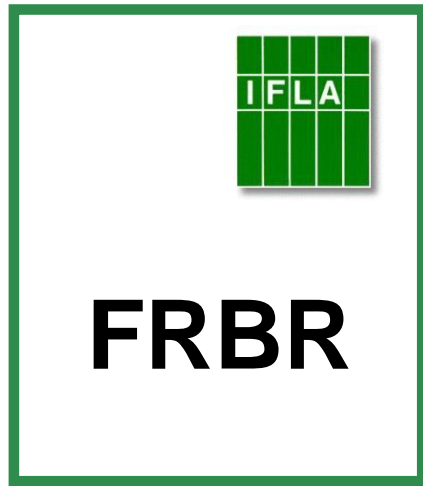
**item**

# In the beginning ... just one model



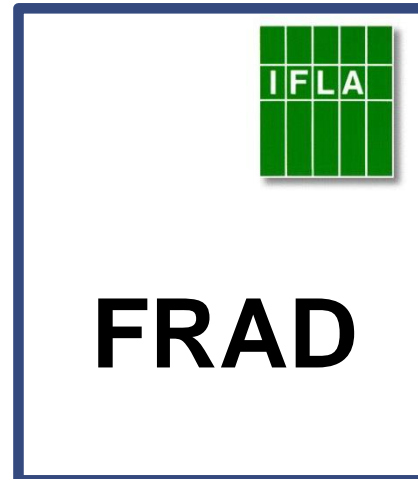
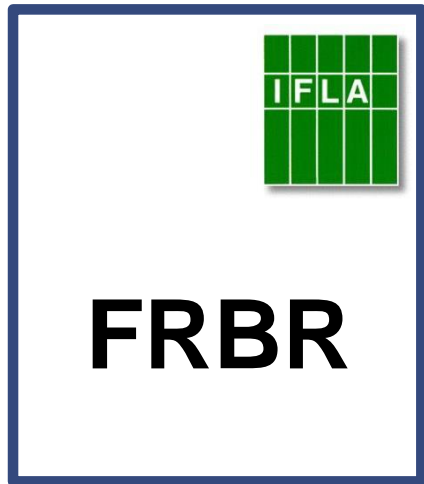


# FRBR is published

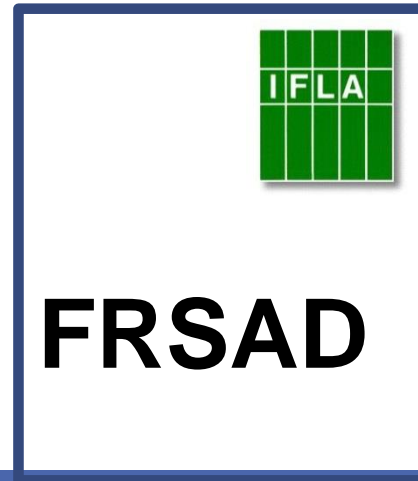


# FRBR's impact → 2 more models

---



2009



2011

# 1 model and 2 extensions

---

**FRBR** bibliographic data

**FRAD** authority data

**FRSAD** subject authority data

- 3 entity-relationship models
- closely related
- “family of FRBR conceptual models”

→ → → *but* developed separately by different groups

# 3 FR models

---

- 3 models – not entirely consistent with each other
- in the library community **usually** need to apply **all three** together
  - how to integrate three models in one application?
  - no guidance on what to do with contradictions
    - ... leading to:
      - inconsistent interpretations in different applications
      - danger of ad hoc resolution of contradictions

# Consolidate: not a mix and match exercise

---

- keep the underlying philosophy of the 3 models
- **but** everything examined and evaluated --
  - user tasks
  - entities
  - attributes
  - relationships

*scope, definitions, where they fit*

# To find → 1 user task – 3 definitions

---

**FRBR**: to find entities that correspond to the user's stated search criteria ...

**FRAD**: Find an entity or set of entities corresponding to stated criteria ... or to explore the universe of bibliographic entities using those attributes and relationships.

**FRSAD**: Find one or more subjects and/or their appellations, that correspond(s) to the user's stated criteria, using attributes and relationships

- all mean the same thing but reflect the different perspectives of each model → new definition in LRM

# Consolidate: learn from experience

---

- informed by the experience and feedback from those applying the original 3 models
  - from those designing databases and applications
  - from those developing cataloguing standards
  - from those writing from theoretical perspectives
- informed by the experience of modelling FRBR<sub>OO</sub>
  - FRBR<sub>OO</sub> 2.4 = object oriented version of FRBR/FRAD/FRSAD

# Consolidate: incorporate what is new

---

since 1998: **FRBR**  study, research, applications

→ IFLA LRM informed by research, observations and experience

- *for example*, the LRM representative expression attribute – the result of research on end-user perceptions
- *for example*, the research and debates on how to deal with aggregates



# a) different levels of granularity

---

*subject entities*

**FRBR 10**

work  
expression  
manifestation  
item  
person  
corporate body  
concept  
object  
event  
place

**FRSAD 1**

thema

## b) resolve the contradictions

---

Definitions of entities:

### **Person**

**FRBR** an individual (real individuals, living or dead)

**FRAD** an individual or a persona or identity established or adopted by an individual or group.

(real individuals and fictitious characters, etc.)

**IFLA LRM** an individual human being

# RDA had to make a choice

---

- an example of what happens when the models are inconsistent and a real application is being developed
- inconsistency between FRBR and FRAD -- which definition to choose?
- RDA 2010 – has the FRAD definition
- now clear guidance in the new LRM and so RDA is conforming to LRM
- RDA 2018 – LRM definition

## b) resolve the contradictions

---

### Modelling of **Name**

**FRBR** an attribute of several entities, e.g. *person*

**FRAD** an entity -- that can have relationships with other entities *such as person*

**FRSAD** part of the broader entity “**nomen**”

# RDA had to make a choice

---

- again, what happens when the models are inconsistent?
- inconsistency between FRBR and FRAD -- which modelling to choose?
- RDA chose FRBR's treatment of name as an attribute
- now clear guidance in LRM and so RDA added "**nomen**" as an entity

## c) modelling for current environment

---

- each entity, attribute and relationship assigned unique ID
- presented with name, definition, constraints, scope notes and examples
- organized and formatted for easy transition to the IFLA Namespace

| <b>ID</b> | <b>Name</b>        | <b>Definition</b>  | <b>Constraints</b>   |
|-----------|--------------------|--|--|
| LRM-E6    | Agent              | An entity capable of deliberate actions, of being granted rights, and of being held accountable for its actions  | Superclass: <i>res</i><br>Subclasses: <i>person</i> ,<br><i>collective agent</i> |
|           | <b>Scope notes</b> | The entity <i>agent</i> is a superclass strictly equivalent to the union of the entities <i>person</i> and <i>collective agent</i> . It is defined to reduce |  |

# c) modelling for current environment

---

- superclass/subclass and inheritance of properties
  - ➔ attributes and relationships can be inherited by subclasses
- declare at superclass level – inherited by all subclasses
- efficiency of modelling / reduce repetition
- more effective in automated environments

# Superclass and subclass (adding entities)

---

**IFLA LRM**

**agent** (super class)

*subclasses of agent*

**person**

**collective agent**



**FRBR/FRAD**

**person** ----- **family** ----- **corporate body**



# Further refined in an application

---

**IFLA LRM**

*subclasses of agent*

**agent** (super class)

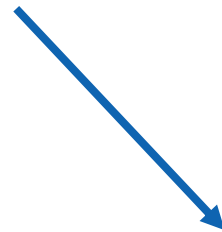
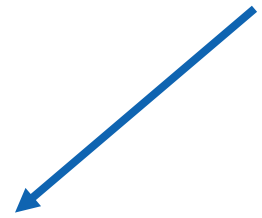
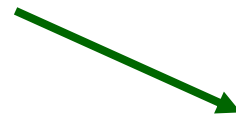
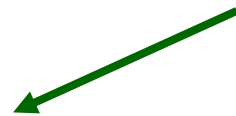
**person**

**collective agent** (super class)

**RDA**

**family**

**corporate body**



# c) modelling for current environment

---

- added entities **place** and **time-span**
  - many attributes moved to relationships
    - stream-lined modelling
    - better fit with the linked data environment
      - attribute = literal
      - relationship = a potential link

# Less attributes → More relationships

---

## FRBR FAMILY OF MODELS

dates = attributes of entity

manifestation entity

attribute: **date of publication**

*a literal*

## IFLA LRM

entity – relationship – entity

manifestation – relationship – time span

an implementation can further define a specific type of relationship

*= is date of publication*

## d) manifestation statement

---

- new attribute of the manifestation
- a statement appearing on exemplars
  - “significant for users to understand how the resource represents itself”
- indicates the place within the structure of the model – where, not how
- totally **non-prescriptive** about how an application decides on subtypes
- openness to different ways but ensures some basic interoperability

## e) representative expression

---

- a new attribute of the work
- from end-user feedback with FRBR + development work with FRBR<sub>00</sub>
- some expressions are seen as more representative of the work than others
- in theory – all expressions of a work are equal
- an attribute which is deemed essential in characterizing the work and whose values are taken from a representative or canonical expression of the work

## e) representative expression

---

- introduces a place in the model to record this data
- acknowledges research with users – users may want the representative expression (not a translation, not an abridgment)
- acknowledges that cataloguers choose a preferred title for the work from a representative expression
- pragmatic way to “park” the information with the “work” even though they are expression attributes
- concept introduced – sub-typing up to implementations

# f) aggregates

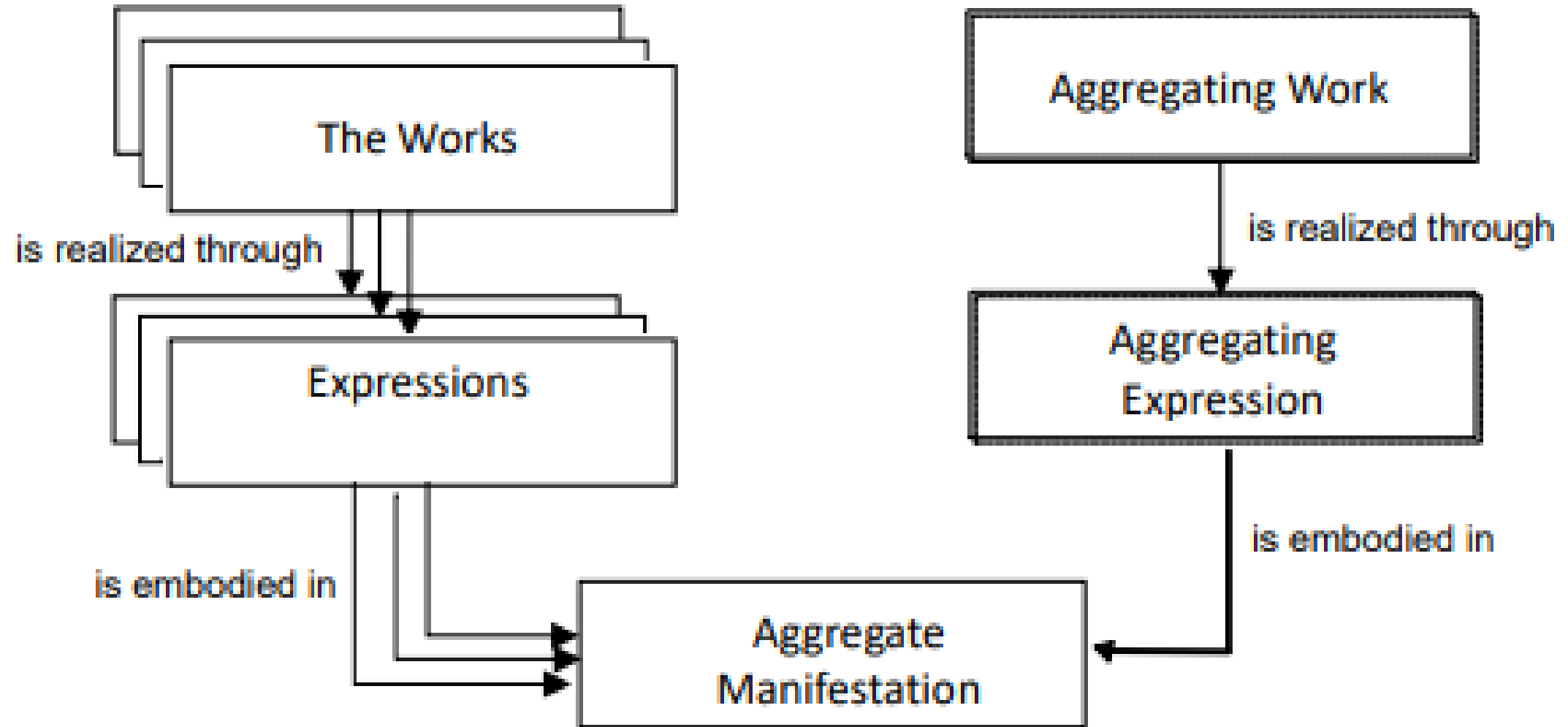
---

- since the publication of FRBR, a big unanswered question
- Working Group – 2005 to 2011
- major step forward in modelling

## 2 key aspects

- 1) aggregate = a manifestation embodying multiple expressions
- 2) aggregating work and expression exist – but they are “plans”  
not the sum of works or expressions

*Figure 5.7 General Model for Aggregates*





## f) aggregates

---

- modelling gives us better understanding
- do not necessarily have to record the aggregating work and expression unless significant
- can also be recorded later
- clear differentiation between 2 **different types of relationships**
  - has part/is part of (LRM-R18)
  - was aggregated by/aggregated (LRM-R25)

# f) aggregates

---

3 types of aggregates identified:

aggregate collection of expressions

collection of short stories, anthology of poems, CDs, journal issues

aggregates resulting from augmentation

independent work supplemented with illustrations, foreword, etc.

aggregates of parallel expressions

the Iliad in Greek and English, bilingual gov docs, DVDs

... and then there are *serials*

# IFLA LRM impact

---

- 1 model instead of 3 – easier to apply
- supersedes the 3 previous models
- carries forward the essence of the 3 previous models
- requires some adjustments for applications/implementations of the three previous models
  - especially when choices between contradictory points are now out of alignment with LRM
- updated modelling and optimization for the linked data environment

# Questions

---

Feel free to email:

[Christine.oliver@uottawa.ca](mailto:Christine.oliver@uottawa.ca)