FRBR: A CONCEPTUAL MODEL FOR THE CATALOGUING

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Abstract: The Functional Requirements for Bibliographic Records (FRBR) data model holds great potential for improving access to library resources. FRBR offers us a fresh perspective on the structure and relationships of bibliographic and authority records, and also a more precise vocabulary to help future cataloguing rule makers and system designers in meeting user needs. Before introduction of FRBR our cataloguing rules tended to be very unclear about using the words 'work', 'edition', 'item'. Even in everyday language, we tend to say a 'book' when we may actually mean several things. For example, when we say 'book' to describe a physical object that has paper pages and a binding and can sometimes be used to prop open a door or hold up a table leg, FRBR calls this as an 'item'. When we say 'book' it may mean a 'publication' as when anyone go to a bookstore to purchase a book. One may know its ISBN but the particular copy does not matter as long as it's in good condition and not missing pages. FRBR calls this a manifestation. The libraries need FRBR to cut costs for the description and access to resources in libraries, to encourage redesign of our systems to move us into linked data information discovery and navigation systems in the Internet environment and to make our bibliographic descriptions and access data more internationally acceptable.

Keywords: FRBR, Relationship Model, E-R Model, Bibliographic Records, Resource Description.

1.0 Introduction: Functional Requirements for Bibliographic Records is a conceptual entity–relationship model developed by the International Federation of Library Associations and Institutions (IFLA) that relates user tasks of retrieval and access in online library catalogues and bibliographic databases from a user's perspective. It represents a more holistic approach to retrieval and access as the relationships between the entities provide links to navigate through the hierarchy of relationships. The model is significant because it is separate from specific cataloguing standards such as Anglo-American Cataloguing Rules (AACR) and International Standard Bibliographic Description (ISBD).
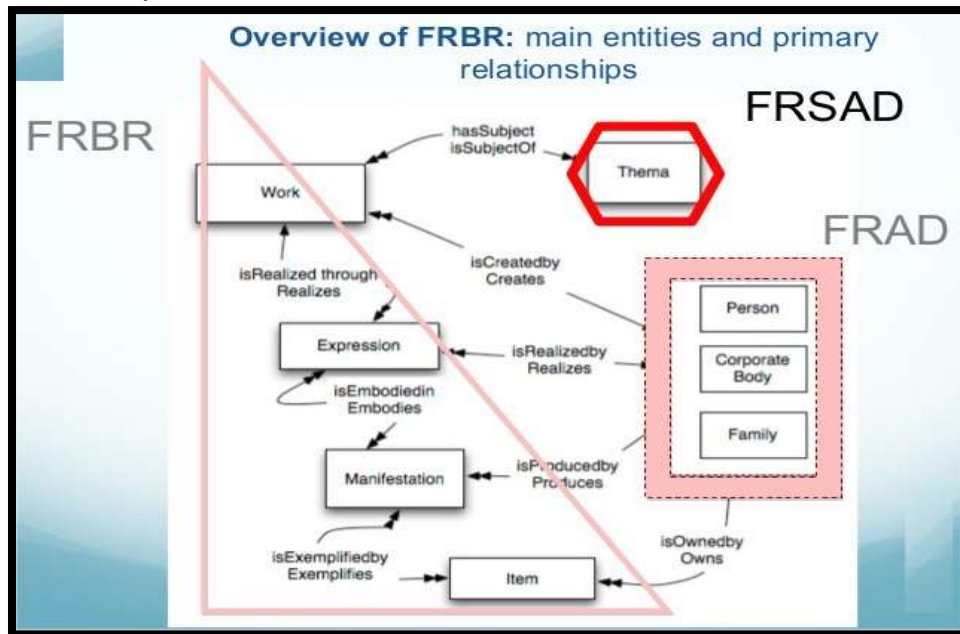
2.0 Background of FRBR

The IFLA Study Group on Functional Requirements for Bibliographic Records (FRBR) developed an entity relationship model as a generalized view of the bibliographic universe, intended to be independent of any cataloguing code or implementation. The FRBR includes a description of the conceptual model (the entities, relationships, and attributes or metadata), a proposed national level bibliographic record for all types of materials, and user tasks associated with the bibliographic resources described in catalogs, bibliographies, and other bibliographic tools. IFLA continues to monitor the application of FRBR and promotes its use and evolution. The IFLA Cataloguing Section's Working Group on FRBR.

The IFLA Functional Requirements for Bibliographic Records (FRBR) conceptual model, published in 1998, focuses on the representation of the bibliographic universe, using an entity relationship model (FRBR, 1998). FRBR defines three groups of entities like Work, Manifestation and Item.

A second conceptual model, Functional Requirements for Authority Data (FRAD), was developed to cover mainly Group-2 entities and any other entity as it relates to authority (i.e., controlled access) information (FRANAR, 2009). FRAD added a new Group-2 entity, Family, in order to respond to the needs of archival collections. In addition, FRAD defined a number of new entities, attributes and relationships that correspond to the needs of authority data. New authority data entities in FRAD include Name (a character or group of words and/or characters by which an entity is known in the real world), Identifier (a number, code, phrase, etc. uniquely associated with an entity), Controlled access point (the term by which a record can be found), Rules

(instructions governing the formulation of a controlled access point), and Agency (an organization that creates and maintains controlled access points).

The third conceptual model in the FRBR family is the Functional Requirements for Subject Authority Data (FRSAD). It should be noted that it is an extension of FRBR and has been an independent development parallel to FRAD. The focus of this model is to identify entities, attributes and relationships as they relate to subject authority data (FRSAR, 2010). Two main entities have been defined in FRSAD, Thema (any entity used as a subject of a Work) and Nomen (any sign or sequence of signs that a Thema is known by, referred to or addressed as). The following figure is an overview of the FRBR family, representing the main entities and primary relationships. All relationships are declared in both directions, left-to-right first. The arrows are used to indicate the cardinality of the relations.

Figure-1: Overview of FRBR Family.

3.0 Concept of Entities in FRBR

The FRBR comprises groups of entities grouped into three major groups:

Group-1 entities are work, expression, manifestation, and item. They represent the products of intellectual or artistic endeavour.

Group-2 entities are person, family and corporate body, responsible for the custodianship of Group 1's intellectual or artistic endeavour.

Group-3 entities are subjects of Group 1 or Group 2's intellectual endeavour, and include concepts, objects, events, places.

The Group-1 entities are the foundation of the FRBR model each entities are explained below:
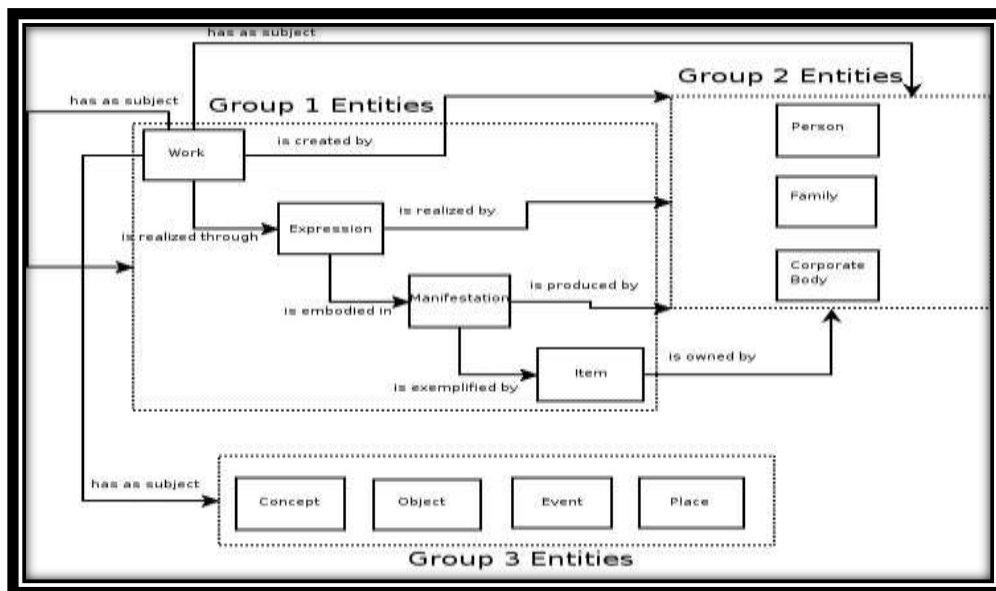
- Work is a "distinct intellectual or artistic creation." For example, Beethoven's Ninth Symphony apart from all ways of expressing it is a work. When we say, "Beethoven's Ninth is magnificent!" we generally are referring to the work.
- Expression is "the specific intellectual or artistic form that a work takes each time it is 'realized.' An expression of Beethoven's Ninth might be each draft of the musical score he writes down (not the paper itself, but the music thereby expressed).
- Manifestation is "the physical embodiment of an expression of a work. As an entity, manifestation represents all the physical objects that bear the same characteristics, in respect to both intellectual content and physical form." The performance the London Philharmonic made of the Ninth in 1996 is a manifestation. It was a physical embodiment even if not recorded, though of course manifestations are most frequently of interest when they are expressed in a persistent form such as a recording or printing. When we say, "The recording of the London Philharmonic's 1996 performance captured the essence of the Ninth," we are generally referring to a manifestation.
- Item is "a single exemplar of a manifestation. The entity defined as item is a concrete entity." Each copy of the 1996 pressings of that 1996 recording is an item. When we say, "Both copies of the London

Philharmonic's 1996 performance of the Ninth are checked out of my local library," we are generally referring to items.

The Group-1 entities are not strictly hierarchical, because entities do not always inherit properties from other entities. Despite initial positive assessments of FRBR clarifying the thoughts around the conceptual underpinnings of works, there has been later disagreement about what the Group-1 entities actually mean. The distinction between Works and Expressions is also unclear in many cases.

The Group-2 entities are those responsible for creating, producing, etc., the entities in Group-1 like person and corporate body. A person and or a corporate body are FRBR entity only if involved in the creation or realization of a work, or is the subject of a work.

The Group-3 entities are subjects of works like concept, object, event and place. The place is a location, from one of a comprehensive range of locations: terrestrial and extra-terrestrial; historical and contemporary; geographic features and geo-political jurisdictions. A concept, an object, an event, or a place is treated as a FRBR entity only if it is the subject of a work.

Figure-2: Relationship Between Group-1, Group-2 and Group-3 Entities.

4.0 Other Types of Relationships

The other types of relationships are shown below:

4.1 Relationships: In addition to the relationships between Group 1 and Groups 2 and 3, there are many additional relationships covering such things as digitized editions of a work to the original text, and derivative works such as adaptations and parodies, or new texts which are critical evaluations of a pre-existing text. FRBR is built upon relationships between and among entities. Relationships serve as the vehicle for depicting the link between one entity and another, and thus as the means of assisting the user to 'navigate' the universe that is represented in a bibliography, catalogue, or bibliographic database.

4.2 Equivalence Relationships Equivalence relationships exist between exact copies of the same manifestation of a work or between an original item and reproductions of it, so long as the intellectual content and authorship are preserved. Examples include reproductions such as copies, issues, facsimiles and reprints, photocopies, and microfilms.

4.3 Derivative Relationships: Derivative relationships exist between a bibliographic work and a modification based on the work like Editions, versions, translations, summaries, abstracts, and digests, Adaptations that become new works but are based on old works, Genre changes, New works based on the style or thematic content of the work.

4.4 Descriptive Relationships: Descriptive relationships exist between a bibliographic entity and a description, criticism, evaluation, or review of that entity, such as between a work and a book review describing it.

Descriptive relationships also includes annotated editions, casebooks, commentaries, and critiques of an existing work.

5.0 Objectives of FRBR

The main objectives of FRBR are:

- To provide a clearly defined, structured framework for relating the data that are recorded in bibliographic records to the needs of the users of those records.
- To recommend a basic level of functionality for records created by national bibliographic agencies.

6.0 Purpose of FRBR

The purpose of FRBR focuses on

- user-focused approach to the bibliographic record (i.e. metadata)
- analyze which parts of the bibliographic record are used to respond to which user task
- ensure that bibliographic record carries the right amount of information to respond to user needs efficiently

7.0 Impetus for FRBR

"Despite several centuries of practice, the profession is still beginning to understand what it means, or perhaps can mean, to catalogue a document."

This simple concept of continued learning and adaptation has always informed the cataloguing world. In the last few decades, however, rapidly developing technology - both its capabilities and its requirements - have made accommodating and even instigating change a necessity. Also, five key factors prompted the development of FRBR:

- Introduction and development of automated systems for the creation and processing of automated data.
- The growth of shared cataloguing has been spurred not only by the technological capability now available but also by the need to cut costs by reducing duplicate cataloguing efforts.
- Increasing costs have forced libraries to take a pragmatic view of cataloguing and look for a 'minimal level' of cataloguing to keep up with increasing publishing output.
- There has been an increasing need to adapt cataloguing codes and practices to accommodate change resulting from the emergence of new forms of electronic publishing, and the advent of networked access to information resources.
- Today's seekers of information have more sophisticated expectations and needs and cataloguing systems must be able to meet them to remain viable and competitive.

With these factors in mind, the IFLA Universal Bibliographic Control and International MARC (UBCIM) Programme and the IFLA Division of Bibliographic Control sponsored 1990 Stockholm Seminar on Bibliographic Records which had nine resolutions. One of them was to commission a study to develop the Functional Requirements for Bibliographic Records.

8.0 Working Concept of FRBR with Example from OPAC

The FRBR is best grasped through several examples of different outputs - say, what a traditional Online Public Access Catalogue (OPAC) screen would give you and what a catalogue system based on FRBR principles would show for the same search query. There are many to be found in the Sources and Further Resources sections below but what follows is one such example.

It shows what a search response in an FRBR based cataloguing system might look like if you entered , "A Christmas Carol" in a search box. In this instance, FRBR is used to interpret the movie version as a separate work. The book is said to have three expressions because each of the first two have different illustrators, which change the expression of the work and the third is in Braille. A change of language (which, in this case, FRBR interprets Braille as) is also a different expression of the work. The second expression has two manifestations because two different publishers created the physical representations of the expression. There are five copies (or items) of the first manifestation and three copies of the second manifestation. The movie version work is treated in much the same way.

A Christmas Carol / Charles Dickens [14 copies] WORK-1

- English: C.E. Brock, illustrator [4 copies] Expression 1
- English: Roberto Innocenti, illustrator [8 copies] Expression 2

- New York: Steward, Tabori & Chang, 1990 [5 copies] Manifestation 1
- Mankato, MN: Creative Education, 1990 [3 copies] Manifestation 2
- Braille, DBPH, 1965 [2 copies] Expression 3

A Christmas Carol [motion picture, 1951] WORK-2
- B & W / English [4 copies] Expression 1
- B & W / Spanish (dubbed) [9 copies] Expression 2
- Salon Mexico, 1988 [5 copies] Manifestation 1
- Cabezahueca Producciones Independientes, 2001 [4 copies] Manifestation 2 (3)

9.0 Conclusion

FRBR is a conceptual model that defines four different entities in an attempt to alter the ways in which cataloguers catalogue items so that they can be more uniform, more trimmed down, and more accessible by users. Functional Requirements for Bibliographic Records (FRBR) has already been used as an approach in domain model development, a step towards building a Dublin Core Application Profile. A domain model is a description of the things the metadata will describe, and the relationships between those things. It is the basic blueprint for the construction of the application profile. The FRBR gave scope to development of two complementary models of FRBR i.e. Functional Requirements for Authority Data (FRAD) and Functional Requirements for Subject Authority Data (FRSAD), thus forming the so-called FRBR family. FRBR's terminology, relationships, and user tasks are already assisting us to review our traditions in cataloguing in light of today's digital environment. IFLA together with other interested parties will continue to encourage the application of this model to facilitate international standardization and reduce costs for cataloguing on a global scale.

10.0 Reference

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