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Production of Courseware e-Content for Postgraduate Subjects

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Module Detail

Subject Name	Library and Information Science
Paper Name	Knowledge Organization and Processing – Cataloguing
Module Name/Title	Functional Requirements for Bibliographic Records (FRBR)
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Structure of Module / Syllabus of a module (Define Topic / Sub-topic of module)

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	Group 2 Entities
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Functional Requirements for Bibliographic Records (FRBR)

1. Introduction

Functional Requirements for Bibliographic Records (FRBR) is a conceptual model based on Entity-Relationship model that serves as the basis for relating specific attributes and relationships to the various user tasks in consulting bibliographic records. FRBR identifies specific user tasks that bibliographic records are intended to fulfill viz., find, identify, select, obtain. It also recommends a set of elements for inclusion in national bibliographic records.

2. Background

International Conference on Cataloguing Principles (ICCP) was held in 1961 under the auspices of IFLA to re-examine the theory and practice of cataloguing at the international level. International Meeting of Cataloguing Experts (IMCE) held in Copenhagen in 1969 resolved to establish an international standard for bibliographic description. As a result, the *International Standard Bibliographic Description for Monographic Publications* was published in 1971. The Paris Principles and the ISBDs served as the foundation of various national and international cataloguing codes.

But the tremendous changes in information and communication technology had massive impact on cataloguing world in 1980s onwards. IFLA recognized the changes and identified the following factors:

i. Development of automated systems for the creation and processing of bibliographic data

ii. Growth of large-scale bibliographic databases participating in shared cataloguing programs.

iii. Economic pressures on the libraries and to do more and more "minimal level" cataloguing.

iv. New forms of electronic publishing, and the advent of networked access to information resources

In 1990 a conference was held in Stockholm sponsored by the IFLA Universal Bibliographic Control and International MARC Programme and the IFLA Division of Bibliographic Control, at which these environmental changes were discussed. And a Study group was appointed in 1991

IFLA Study Group on the Functional Requirements for Bibliographic Records submitted draft in 1996 and was approved by the Standing Committee of the IFLA Section on Cataloguing in September 1997. And FRBR was published in 1998.

The methodology used in FRBR is Entity-Relationship model (E-R model) which has been borrowed from database technology. E-R model is a conceptual model that represents data of an information domain in terms of entities, attributes and relationships. It was proposed by Prof. P.P. Chen in 1976

3. Entities

Entities are the basic objects of E-R model. Whatever exists independently is called entity. It may be a physical object (for example, a book, a student, an employee) or it may be an object with conceptual existence (for example, a library, a publisher, a university course). FRBR has identified three groups of entities.

3.1 Group 1 Entities: Work, Expression, Manifestation, Item

The entities in the first group (Figure 3.1) represent the different aspects of user interests in the products of intellectual or artistic endeavour. The entities defined as *work* (a distinct intellectual or artistic creation) and *expression* (the intellectual or artistic realization of a *work*) reflect intellectual or artistic content. The entities defined as *manifestation* (the physical embodiment of an *expression* of a *work*) and *item* (a single exemplar of a *manifestation*), on the other hand, reflect physical form.

3.1.1 Work

A *work* is an abstract entity; there is no single material object one can point to as the *work*. W*ork i*s recognised through individual realizations or *expressions* of the *work*, but the *work* itself exists only in the commonality of content between and among the various *expressions* of the *work*. For example, Homer's *Iliad* as a work does not refer to any particular recitation or text of the *work*, but the intellectual creation that lies behind all the various *expressions* of the *work*.

Examples:

□ w_1 Henry Gray's *Anatomy of the human body*

□ e_1 text and illustrations for the first edition

□ e_2 text and illustrations for the second edition

□ **e**$_3$ text and illustrations for the third edition

□ **….**

3.1.2 Expression

An *expression* is the specific intellectual or artistic form that a *work* takes each time it is "realized." *Expression* encompasses, for example, the specific words, sentences, paragraphs, etc. that result from the realization of a *work* in the form of a text, or the particular sounds, phrasing, etc. resulting from the realization of a musical *work*. The boundaries of the entity *expression* are defined, however, so as to exclude aspects of physical form, such as typeface and page layout, that are not integral to the intellectual or artistic realization of the *work* as such. When an *expression* is accompanied by augmentations, such as illustrations, notes, glosses, etc. that are not integral to the intellectual or artistic realization of the *work*, such augmentations are considered to be separate *expressions* of their own separate *work(s)*. Such augmentations may, or may not, be considered significant enough to warrant distinct bibliographic identification.

Examples:

□ **w**$_1$ Ellwanger's *Tennis--bis zum Turnierspieler*

□ **e**$_1$ the original German text

□ **e**$_2$ the English translation by Wendy Gill

□ **….**

3.1.3 Manifestation

The entity defined as *manifestation* encompasses a wide range of materials, including manuscripts, books, periodicals, maps, posters, sound recordings, films, video recordings, CD-ROMs, multimedia kits, etc. As an entity, *manifestation* represents all the physical objects that bear the same characteristics, in respect to both intellectual content and physical form.

When a *work* is realized, the resulting *expression* of the *work* may be physically embodied on or in a medium such as paper, audio tape, video tape, canvas, plaster, etc. That physical embodiment constitutes a *manifestation* of the work. In some cases there may be only a single physical exemplar produced of that *manifestation* of the *work* (e.g., an author's manuscript, a tape recorded for an oral history archive, an original oil painting, etc.). In other cases there are multiple copies produced in order to facilitate public dissemination or distribution. In those cases there is normally a more formal production process involved, and a publisher, producer, or distributor takes responsibility for the process.

The boundaries between one *manifestation* and another are drawn on the basis of both intellectual content and physical form. When the production process involves changes in physical form the resulting product is considered a new *manifestation*. Changes in physical form include changes affecting display characteristics (e.g., a change in typeface, size of font, page layout, etc.), changes in physical medium (e.g., a change from paper to microfilm as the medium of conveyance), and changes in the container (e.g., a change from cassette to cartridge as the container for a tape). Where the production process involves a publisher, producer, distributor, etc., and there are changes signaled in the product that are related to publication, marketing, etc. (e.g., a change in publisher, repackaging, etc.), the resulting product may be considered a new *manifestation*. Whenever the production process involves modifications, additions, deletions, etc. that affect the intellectual or artistic content, the result is a new *manifestation* embodying a new *expression* of the *work*.

Examples:

> □ w_1 Harry Lindgren's *Geometric dissections*

> > □ e_1 original text entitled *Geometric dissections*

> > > □ m_1 the book published in 1964 by Van Nostrand

> > □ e_2 revised text entitled *Recreational problems in geometric dissections ....*

> > > □ m_1 the book published in 1972 by Dover

3.1.4 Item

The entity defined as *item* is a concrete entity. It is in many instances a single physical object (e.g., a copy of a one-volume monograph, a single audio cassette, etc.). There are instances, however, where the entity defined as *item* comprises more than one physical object (e.g., a monograph issued as two separately bound volumes, a recording issued on three separate compact discs, etc.).

Examples:

> □ w_1 Ronald Hayman's *Playback*

> > □ e_1 the author's text edited for publication

> > > □ m_1 the book published in 1973 by Davis-Poynter

The relationships depicted in the diagram indicate that a *work* may be realized through one or more than one *expression* (hence the double arrow on the line that links *work* to *expression*). An *expression*, on the other hand, is the realization of one and only one *work* (hence the single arrow on the reverse direction of that line linking *expression* to *work*). An *expression* may be embodied in one or more than one *manifestation*; likewise a *manifestation* may embody one or more than one *expression*. A *manifestation*, in turn,may be exemplified by one or more than one *item*; but an *item* may exemplify one and only one *manifestation*.

Figure 3.1: Group 1 Entities and Primary Relationships
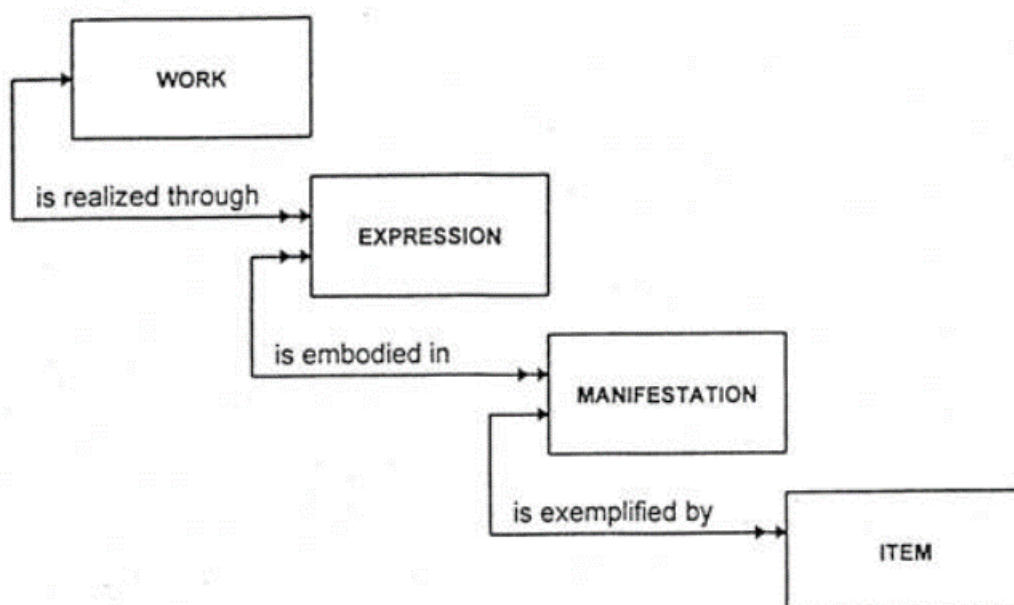
3.2 Group2 Entities: Person, Corporate Body

The entities in the second group (outlined in bold in Figure 3.2) represent those responsible for the intellectual or artistic content, the physical production and dissemination, or the custodianship of the entities in the first group. The entities in the second group include *person* (an individual) and *corporate body* (an organization or group of individuals and/or organizations).

The diagram depicts the type of "responsibility" relationships that exist between entities in the second group and the entities in the first group. The diagram indicates that a *work* may be created by one or more than one *person* and/or one or more than one *corporate body*. Conversely, a *person* or a *corporate body* may create one or more than one *work*. An *expression* may be realized by one

or more than one *person* and/or *corporate body*; and a *person* or *corporate body* may realize one or more than one *expression*. A *manifestation* may be produced by one or more than one *person* or *corporate body*; a *person* or *corporate body* may produce one or more than one *manifestation*. An *item* may be owned by one or more than one *person* and/or *corporate body*; a *person* or *corporate body* may own one or more than one *item*.

3.2.1 Person

The entity defined as *person* encompasses individuals that are deceased as well as those that are living.

Examples:

▫ p_1 Margaret Atwood

▫ p_2 William Shakespeare

▫ P_3 Rabindranath Tagore

▫ p_4 Anatole France

▫ ….

Persons are treated as entities only to the extent that they are involved in the creation or realization of a *work* (e.g., as authors, composers, artists, editors, translators, directors, performers, etc.), or are the subject of a *work* (e.g., as the subject of a biographical or autobiographical *work*, of a history, etc.).

3.2.2 Corporate Body

The entity defined as *corporate body* encompasses organizations and groups of individuals and/or organizations that are identified by a particular name, including occasional groups and groups that are constituted as meetings, conferences, congresses, expeditions, exhibitions, festivals, fairs, etc. The entity also encompasses organizations that act as territorial authorities, exercising or claiming to exercise government functions over a certain territory, such as a federation, a state, a region, a local municipality, etc. The entity encompasses organizations and groups that are defunct as well as those that continue to operate.

Examples

▫ **cb$_1$** Museum of American Folk Art

▫ **cb$_2$** BBC Symphony Orchestra

▫ **cb$_3$** Symposium on Glaucoma

□ **cb**$_4$ Kolkata Municipal Corporational Municipality of Ottawa-Carleton

□ ….

Figure 3.2: Group 2 Entities and "Responsibility" Relationships
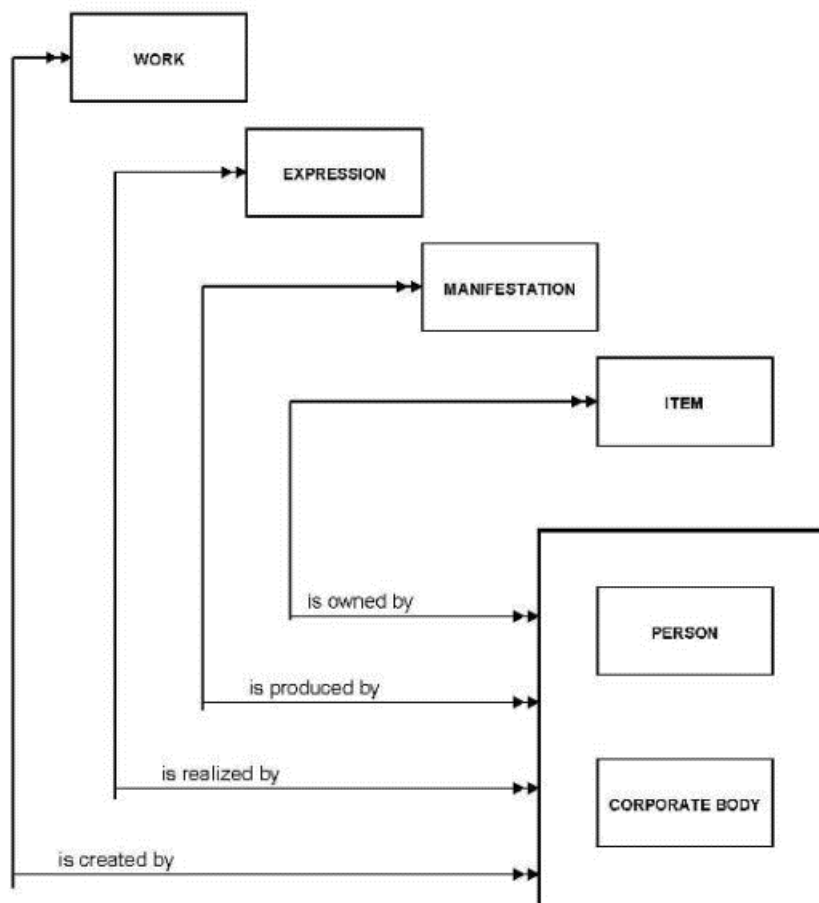
3.3 Group 3 Entities: Concept, Object, Event, Place

The entities in the third group represent an additional set of entities that serve as the subjects of *works*. The group includes *concept* (an abstract notion or idea), *object* (a material thing), *event* (an action or occurrence), and *place* (a location).

The diagram depicts the "subject" relationships between entities in the third group and the *work* entity in the first group. The diagram indicates that a *work* may have as its subject one or more than one *concept, object, event,* and/or *place*. Conversely, a *concept, object, event,* and/or *place* may be the subject of one or more than one *work*.

The diagram also depicts the "subject" relationships between *work* and the entities in the first and second groups. The diagram indicates that a work may have as its subject one or more than one *work*, *expression*, *manifestation*, *item*, *person*, and/or *corporate body*.

3.3.1 Concept

The entity defined as *concept* encompasses a comprehensive range of abstractions that may be the subject of a *work*: fields of knowledge, disciplines, schools of thought (philosophies, religions, political ideologies, etc.), theories, processes, techniques, practices, etc. A *concept* may be broad in nature or narrowly defined and precise.

Examples:

□ c_1 Economics

□ c_2 Romanticism

□ c_3 Cognitive science

□ c_4 Linguistics

3.3.2 Object

The entity defined as *object* encompasses a comprehensive range of material things that may be the subject of a *work*: animate and inanimate objects occurring in nature; fixed, movable, and moving objects that are the product of human creation; objects that no longer exist.

Examples:

□ o_1 Buckingham Palace

□ o_2 Taj Mahal

□ o_3 Apollo 11

□ o_4 The Eiffel Tower

□ ….

3.3.3 Event

The entity defined as *event* encompasses a comprehensive range of actions and occurrences that may be the subject of a work: historical events, epochs, periods of time, etc.

Examples:

□ e_1 The Garment Workers' Strike

□ e_2 World War II

□ e_3 The Age of Enlightenment

□ e_4 The Nineteenth Century

3.3.4 Place

The entity defined as *place* encompasses a comprehensive range of locations: terrestrial and extra-terrestrial; historical and contemporary; geographic features and geo-political jurisdictions.

Examples

□ **pl**$_1$ Howard Beach

□ **pl**$_2$ The Alacran Reef

□ **pl**$_3$ The Himalayas

□ **pl**$_4$ New Delhi

Figure 3.3: Group 3 Entities and "Subject" Relationships
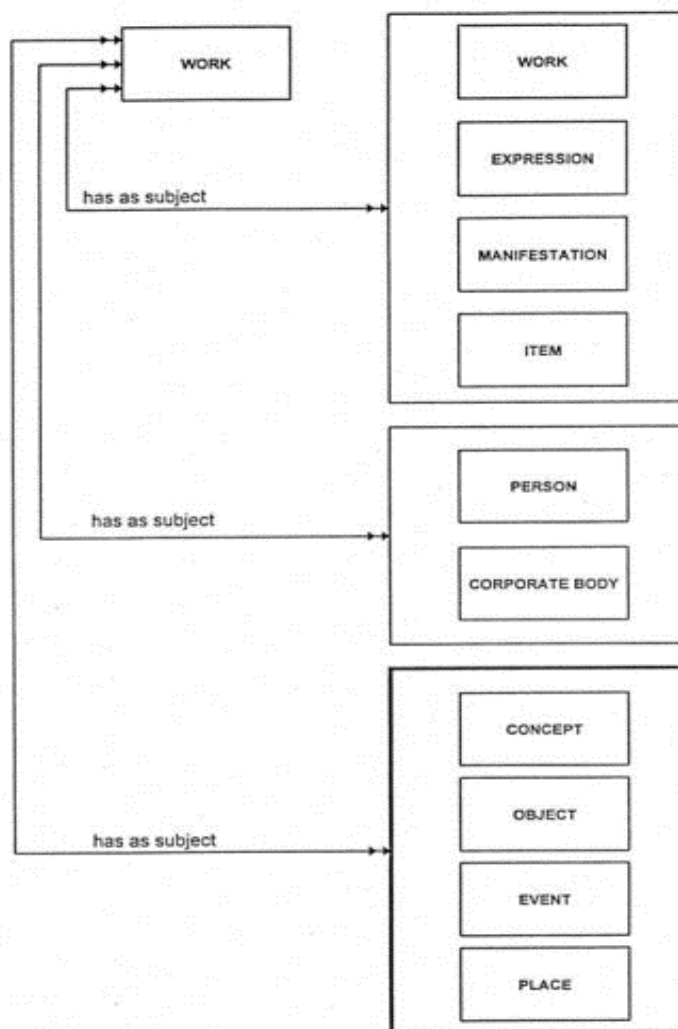
4. Attributes

Each entity has attributes i.e., the properties which describe the entity. For example, a person entity may be described by his name, Date of birth, designation etc.

4.1 Attributes of a Work

The logical attributes of a work defined in FRBR are the following:

> title of the *work*
> form of *work*
> date of the *work*
> other distinguishing characteristic
> intended termination
> intended audience
> context for the *work*
> medium of performance (musical work)
> numeric designation (musical work)
> key (musical work)
> coordinates (cartographic work)
> equinox (cartographic work)

4.2 Attributes of an Expression

The logical attributes of an *expression* defined in FRBR are the following:

> title of the *expression*
> form of expression
> date of expression
> language of expression
> other distinguishing characteristic
> extensibility of expression
> revisability of expression
> extent of the expression
> summarization of content

4.3 Attributes of a Manifestation

The logical attributes of a manifestation defined in FRBR are the following:

title of the manifestation
statement of responsibility
edition/issue designation
place of publication/distribution
publisher/distributor
date of publication/distribution

fabricator/manufacturer
series statement
form of carrier
extent of the carrier
physical medium
capture mode
dimensions of the carrier
manifestation identifier
source for acquisition/access authorization
terms of availability
access restrictions on the manifestation
typeface (printed book)
type size (printed book)
foliation (hand-printed book)
collation (hand-printed book)
publication status (serial)
numbering (serial)
playing speed (sound recording)
groove width (sound recording)
kind of cutting (sound recording)
tape configuration (sound recording)
kind of sound (sound recording)
special reproduction characteristic (sound recording)
colour (image)
reduction ratio (microform)
polarity (microform or visual projection)
generation (microform or visual projection)
presentation format (visual projection)
system requirements (electronic resource)
file characteristics (electronic resource)
mode of access (remote access electronic resource)
access address (remote access electronic resource)

4.4 Attributes of an Item

The logical attributes of an *item* defined in FRBR are the following:

> *item* identifier
> fingerprint
> provenance of the *item*
> marks/inscriptions
> exhibition history
> condition of the *item*
> treatment history
> scheduled treatment
> access restrictions on the *item*

4.5 Attributes of a Person

The logical attributes of a *person* defined in FRBRare the following:

> name of *person*
> dates of *person*
> title of *person*
> other designation associated with the *person*

4.6 Attributes of a Corporate Body

The logical attributes of a *corporate body* defined in are the following:

> name of the corporate body
> number associated with the corporate body
> place associated with the corporate body
> date associated with the corporate body
> other designation associated with the corporate body

4.7 Attributes of a Concept

The logical attributes of a *concept* defined in FRBR are the following:

> term for the *concept*

4.8 Attributes of an Object

The logical attributes of an *object* defined in FRBR are the following:

> term for the *object*

4.9 Attributes of an Event

The logical attributes of an *event* defined in FRBR are the following:

> term for the *event*

4.10 Attributes of a Place

The logical attributes of a *place* defined in FRBR study are the following:

> term for the *place*

5. Relationship

A relationship is an association between or 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.

Relationships may be reflected in bibliographic records in a number of ways. The following types of relationships have in identified in FRBR.

5.1 Relationships Between Work, Expression, Manifestation, and Item

5.2 Relationships to Persons and Corporate Bodies

5.3 Subject Relationships

5.4 Other Relationships Between Group 1 Entities

>5.4.1 Work-to-Work Relationships

>5.4.2 Expression-to-Expression Relationships

>5.4.3 Expression-to-Work Relationships

>5.4.4 Manifestation-to-Manifestation Relationships

>5.4.5 Manifestation-to-Item Relationships

>5.4.6 Item-to-Item Relationships

6. User Tasks

The FRBR model serves as a framework for analyzing the uses that are made of bibliographic data with specific reference to the entity that is the object of the user's interest, and to the attributes and relationships that are relevant to the task being performed by the user. Each attribute and relationship can be mapped directly to the user tasks they support.

The tasks are defined in relation to the elementary uses that are made of the data by the user. Four generic user tasks have been defined:

6.1 Find

To *find* entities that correspond to the user's stated search criteria (i.e., to locate either a single entity or a set of entities in a file or database as the result of a search using an   attribute or relationship of the entity);

6.2 Identify

To *identify* an entity (i.e., to confirm that the entity described corresponds to the entity sought, or to distinguish between two or more entities with similar characteristics);

6.3 select

To *select* an entity that is appropriate to the user's needs (i.e., to choose an entity that meets the user's requirements with respect to content, physical format, etc., or to reject an entity as being inappropriate to the user's needs);

6.4 Obtain

To acquire or *obtain* access to the entity described (i.e., to acquire an entity through purchase, loan, etc., or to access an entity electronically through an online connection to a remote computer).

7. Conclusion:

FRBR is a concptual model in relation to bibliographic universe which has great potentiality to design information retrieval system since it is based on user tasks. Resource Description and Access (RDA) – the new cataloguing code has adopted FRBR model. Many FRBR-based systems have already come out, for example, OCLC FictionFinder, Virtua ILS, RedLightGreen, BIBSYS etc. FRBR provides a revolutionary approach to study cataloguing theory and practice. It is hoped that FRBR will greatly influence the catalogues and cataloguers in the coming days.

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