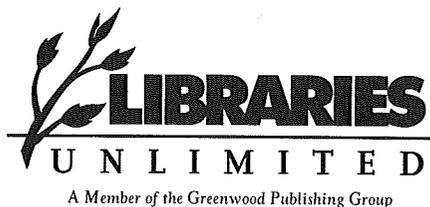


Understanding FRBR

What It Is and How It Will Affect Our
Retrieval Tools

Edited by Arlene G. Taylor

--reading from Chapter 1, "An Introduction to Functional Requirements for
Bibliographic Records (FRBR)," by Arlene G. Taylor.



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What Is FRBR? (and What Is It Not?)

FRBR is a conceptual model. It is set out in a report composed by the International Federation of Library Institutions and Associations (IFLA) Study Group on the Functional Requirements for Bibliographic Records and was published in 1998.¹ Allyson Carlyle has said, "FRBR is a conceptual model with the primary purpose of improving cataloging records (a product), cataloging (a process), and catalogs (a technology)."² She goes on to say:

Conceptual models (in the systems world, these are sometimes called abstract models) are theoretical models. . . . [A] major strength of conceptual models . . . is that they facilitate understanding and manipulation of complex entities by rendering them *less* complex. This is also a potential weakness, if critical aspects of what is modeled are somehow assumed away.³

A conceptual model, being theoretical, has to be thought about. It cannot be implemented, *per se*, because it does not cover every possible way that something might appear. It says that *most* of the time, the world covered by this model looks like *this*. So it is important to emphasize that FRBR is *not* a set of rules. It is *not* an international standard. And it is *not* a system design for online catalogs. Those things can be created based on a particular understanding of the model, but FRBR is just the model.

The specific type of conceptual model that is found in FRBR is based on the entity-attribute-relationship model of analysis. An entity is a "thing." An attribute is a characteristic. And a relationship is an interaction. Either entities or relationships can have attributes. In FRBR, *entities* of interest to users of bibliographic systems are identified, *attributes* of interest to users are identified for each entity, and *relationships* that operate between entities are specified.

FRBR Entities

The FRBR entities are divided into three groups:

- Group 1 (products of intellectual or artistic endeavor)
 - Work
 - Expression
 - Manifestation
 - Item
- Group 2 (responsible for content, production, or custodianship of Group 1 entities)
 - Person
 - Corporate body
- Group 3 (may serve as subjects of Group 1 entities)
 - Group 1 and 2 entities
 - Concept
 - Object

- Event
- Place

Group 1 Entities

Let us look at the entities one by one, giving some definitions and examples:

- work
 - distinct intellectual or artistic creation
 - abstract entity with no single material object one can point to
 - recognized through individual *expressions* of the work
 - revisions, updates, abridgements, enlargements, translations, musical arrangements, and dubbed or subtitled versions of a film are considered to be *expressions* of the same *work*
 - paraphrases, rewritings, adaptations from one literary or art form to another, abstracts, digests, and summaries are considered to be *new works*
 - examples of works:
 - Ferber's *Show boat*
 - *Show boat*, the musical
 - Mozart's *The Magic Flute*
 - online journal *D-Lib Magazine*
 - Vincent van Gogh's *Iris*
 - Michelangelo's *David*
- expression
 - realization of a work in alpha-numeric, musical, or choreographic notation, sound, image, object, movement, etc.; or any combination of such forms
 - a new expression excludes aspects of physical form (e.g., typeface) that do not change intellectual or artistic realization of the work
 - a change in form (e.g., change from written word to spoken word or addition of artistic content) or a change in intellectual approach (e.g., translation from one language to another or a revised edition) results in a *new expression*
 - e.g., for Edna Ferber's *Show boat*:
 - e₁—original English language text
 - e₂—the text illustrated with scenes from the movie
 - e₃—version translated into Portuguese
 - e.g., for a work of Franz Schubert:
 - e₁—the composer's score
 - e₂—a performance by the Amadeus Quartet
 - e₃—a performance by the Cleveland Quartet

FRBR is somewhat print oriented. Many of its examples are print or recorded sound resources. We have not quite sorted through what is a *work* or an

expression in the worlds of museum and art objects, digital objects, cartographic materials, moving image materials, continuing resources, and archives. (Later chapters in this book address some issues involved in identifying *works* and *expressions* in those fields.) But I think that if we look at *work* and *expression* from the viewpoint of an author (rather than from the viewpoint of a cataloger), we might be able to make some interesting observations. As an author I start with a work in my head, and I think about it for months or years before expressing it. Take for example my book *The Organization of Information*.⁴ It began life as lectures to my “beginning cataloging” classes. It seemed to me that the required course for everyone, including those who would never be catalogers, should be broader than just opening the cataloging rules on day one and starting to discuss rules. As I successfully broadened it, I began to think about how to share it with other teachers. I could have written a series of articles (one expression of the work). And, in fact, the subject analysis chapter made its first appearance as a chapter in *Guide to Indexing and Cataloging with the Art & Architecture Thesaurus*.⁵ Or I could have published my series of PowerPoint presentations, which would have been a different work. In FRBR terms, the PowerPoint presentations are a different work because the extent of intellectual content is quite different. The intellectual content for the book is greatly expanded from the outline form of the presentations. These were originally printed as overhead transparencies—another expression of the work as a presentation. Transparencies versus electronic files are, I think, different expressions, since the electronic files could contain notes not present on the transparencies. And the presentations were updated every year, so the intellectual content of the latest presentations would be different from that printed on the transparencies. I settled on *publishing* my “work” as a book. Had I first written all the chapters as separate articles and then collected them as a book, these would have been two expressions of that work.

- manifestation
 - physical embodiment of an expression of a work
 - when production involves changes in the physical form (or format), it results in a *new manifestation*
 - changes in physical form include changes in display characteristics (e.g., font size, page layout), changes in physical medium (e.g., change from paper to microfilm), or changes in container (e.g., change from videocassette to DVD [but with no additions, modifications, etc.]
 - changes in production signaled by a change in publisher, etc., also result in new manifestations
- e.g., Ferber’s *Show boat*
 - e₁—original text document
 - m₁—Grosset & Dunlap (N.Y.) 1926 publication
 - m₂—archival photocopy of m₁
 - m₃—Heinemann (London) 1926 publication
 - e.g., The New York Times

- e₁—paper (vs. Web) version
 - m₁—print-on-paper format
 - m₂—microfilm format

Manifestations are what we traditionally catalog, describe, and provide subject analysis for.

- item
 - a single exemplar of a manifestation; although in some instances an “item” may consist of more than one physical object (e.g., a two-volume monograph, or a three-disk recording)
 - normally the same as the manifestation itself
 - variations external to the intent of the producer of the manifestation can occur in individual items (e.g., damaged copy, copy autographed by author, copy bound by a library, etc.)

Items are what we collect, house, and provide physical and/or intellectual access to.

Group 1 is the set of entities that you’ve probably heard the most about, and these entities are the ones that are being used in “FRBRization” projects (i.e., projects attempting to implement an understanding of the FRBR model). Note that the entities are named in FRBR “top down” (i.e., work to item), although cataloging is done “bottom up” (i.e., item to work). A cataloger has an item at hand and uses it to represent all the items that make up that particular manifestation. How can a cataloger know all of the other manifestations and expressions that exist or will exist, especially for a new item? But the “top down” approach seems to make much more sense for display purposes, even though FRBR says there’s nothing “tangible” at either the work or the expression level. Naming of the abstract work entity can be followed hierarchically by names for the abstract expression entities, which can then be followed by descriptions of actual manifestations of the expressions. Continuing with the previous example:

w₁—Arlene G. Taylor’s *The Organization of Information*—classroom presentation

e₁—overhead transparencies

m₁—collection of celluloid transparencies in file folders

e₂—PowerPoint presentations

m₁—digital files on CD-ROM

w₂—Arlene G. Taylor’s *The Organization of Information*—text

e₁—1st ed.

m₁—published by Libraries Unlimited in 1999

e₂—2nd ed.

m₁—published by Libraries Unlimited in 2004

e₃—translation into Chinese

m₁—published by Ji xie gong ye chu ban she in 2006

Group 2 Entities

Group 2 entities are the entities responsible for the existence and/or care of the Group 1 entities:

- person—an individual, living or deceased
- corporate body—an organization or group of individuals and/or organizations acting as a unit

A person and/or a corporate body is a FRBR entity only if involved in the creation or realization of a *work*, or is the subject of a *work*. Descriptions of these entities in their own right are discussed in the new document on authority data (soon to be published by IFLA, and discussed in Chapter 2 of this book). In that document “family” is added as a third Group 2 entity, in cooperation with the field of archives where families are often responsible for the existence of collections.

Group 3 Entities

Any Group 1 or 2 entity may be the subject of any Group 1 entity. There are also four additional entities in Group 3 that may be the subject of any Group 1 entity (i.e., what the entity is “about”):

- concept—an abstract notion or idea—encompasses a comprehensive range of abstractions and may be broad in nature or narrowly defined and precise
- object—a material thing, including animate and inanimate objects occurring in nature; fixed, movable, and moving objects that are products of human creation; objects that no longer exist
- event—an action or occurrence (e.g., historical event, epoch, period of time)
- place—a location, from one of a comprehensive range of locations: terrestrial and extraterrestrial; historical and contemporary; geographic features and geopolitical jurisdictions⁶

Various communities have different definitions of these entities. For example, *Cataloging Cultural Objects* (CCO)⁷ has “concept” as a separate entity from “subject.” “Concept” contains generic terms, style terms, and the like. I think the difference relates to what a work is “of” versus what it is “about.” For example, a work may be a picture “of” a female human figure. Or it may be a picture “of” Lucretia. It may have been determined by art specialists to be a work “about” virtuousness. If I have this somewhat correct, then “concept” in

CCO is rather different from “concept” in FRBR. We always have to be sure we are using terminology as defined in the context of the conceptual model we are working with.

It should be remembered that a concept, an object, an event, or a place is treated as a FRBR entity only if it is the subject of a Group 1 entity. These are not FRBR entities in the sense that a person or corporate body is a FRBR entity. That is, a concept, object, event, or place cannot be responsible for the existence or care of a work, expression, manifestation, or item.

Aggregate and Component Entities

The FRBR model allows us to represent aggregate entities as one work (e.g., several works brought together by an editor in an anthology, monographs brought together by a publisher in a series, collection of private papers organized by an archive as a single fond). Or, we may treat a component of a larger work (e.g., chapter, map segment, journal article) as a work itself. Aggregates and component entities are treated as whole/part relationships.

FRBR Attributes

Attributes are properties or characteristics. They are included in the model to give users the means to find various entities. Users can formulate queries by asking for certain attributes, and they can interpret responses to their queries by looking at the attributes listed for the entities that are retrieved.

Attributes for Group 1

FRBR contains detailed lists of attributes for each Group 1 entity along with definitions of each attribute. For example, the list of attributes that FRBR gives for the entity *work* are:

- title of the *work*
- form of the *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)⁸

Some of the attributes are included to accommodate particular subtypes of the entity. That is, “musical work” and “cartographic work” are *work* subtypes that would exhibit the attributes designated for them.

The words or character strings used for a particular attribute are the "value" of that attribute. For example, the words "Show boat" represent the value of the attribute "title of the *work*." The values for most attributes are "inherent" in an entity, although some are found only by reference to an external source (e.g., a thematic catalog number for music). Most attributes have only one value, although it is possible to have more than one (e.g., a particular manifestation might show both an original title and a translated title). In addition, an entity might not have any value for one or more of the attributes listed for that entity. For example, "series statement" is an attribute listed for *manifestation*, but many manifestations will have no series statements.

There is no attribute listed under *work* for "creator" or equivalent because that particular characteristic is represented in the FRBR model by a relationship between entities. That is, a person or corporate body entity or entities will be in a "created by" relationship with the *work* entity. Some attributes may appear to be the same as entities, but they are different in FRBR. For example, the *manifestation* attribute "statement of responsibility" and the entity "person" may both be represented by the identical character string "Edna Ferber." The statement of responsibility, however, reflects the labeling information found in the manifestation itself, whereas the entity *person* is a representation of a "created by" relationship.

It is instructive to observe some attributes that *work* and *expression* have in common:

- title
- form
- date
- other distinguishing characteristic
- context
- medium of performance (musical work) [under *expression* the parenthetical part is (musical notation or recorded sound)]

However, these would not necessarily have identical character strings (e.g., *Show boat* for the *work*, but *Teatro flutuante* for an *expression* that is a Portuguese translation; *symphony* for form of *work*, but *musical notation* or *sound* for forms of *expressions*).

The lists of attributes for *expression* and *manifestation* are lengthy. The list for *item* is short but includes very specific attributes, for example, provenance of the *item*. These lists and definitions should be consulted in the *FRBR Report* as needed.⁹

Attributes for Groups 2 and 3

Attributes for Groups 2 and 3 are only minimally specified in FRBR. Group 2 entities, attributes, and relationships are being worked on by the IFLA Working Group on Functional Requirements and Numbering for Authority Records (FRANAR), which will soon issue its report: Functional Requirements

for Authority Data (FRAD).¹⁰ Group 3 entities, attributes, and relationships are being worked on by the IFLA Working Group on Functional Requirements for Subject Authority Records: FR SAR.¹¹

FRBR Relationships

High-level Relationships

In the FRBR model, relationships are used to show the link between one entity and another. It is through such links that users of bibliographic systems can navigate a system to find connections between one entity that has been found and all the other entities that are related to it. Figures 1.1–1.3, reproduced from the *FRBR Report*, show the high-level entity-relationship diagrams from FRBR that indicate at a generalized level how the entities are connected with one another.

Relationships can be reflected in a number of ways. They are often reflected by including attributes of one entity with those of a related entity in a single record. It is common to include with the attributes of a *manifestation* the attributes of the *work* and the *expression* that are embodied in that *manifestation*. Implied relationships with a *person* or *corporate body* may be shown by the creation of a heading or access point in a bibliographic record. Such a heading is usually meant to identify a person or body that is responsible for the existence of the entity described in the record. A heading for another *work* may indicate a relationship between the works. Or the heading may be a subject heading, implying that the entity represented by the bibliographic record has the entity in the heading as a subject of its intellectual content. Explicit relationships can be shown through use of notes in the bibliographic record that state the nature of a relationship (e.g., “Translation of: The organization of information, 2nd ed.”).

Additional Relationships

In addition to the high-level relationships, FRBR identifies major types of relationships that operate between instances of the same entity type and between instances of different entity types. In some of the FRBR tables, related works or expressions are identified as being “referential” or “autonomous.” Referential works require an understanding of another work in order to be understood on their own (e.g., a concordance). Autonomous works can be used or understood without reference to another work (e.g., a dramatization).

Relationship types for work-to-work and expression-to-work are almost identical and therefore are listed together here:

- successor (sequel, succeeding work)
- supplement (index, concordance, teacher’s guide, gloss, supplement, appendix)
- complement (cadenza, libretto, choreography, ending for unfinished work, incidental music)
- summarization (digest, abstract)

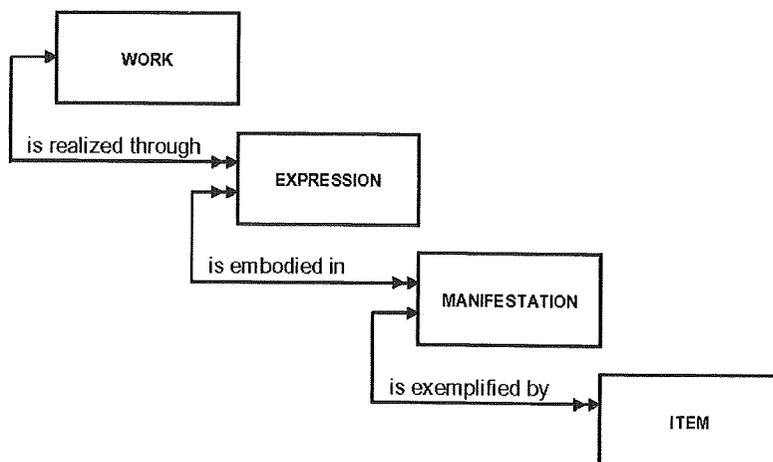


Figure 1.1. Group 1 Entities and Primary Relationships (source: *FRBR Report*, p. 13).

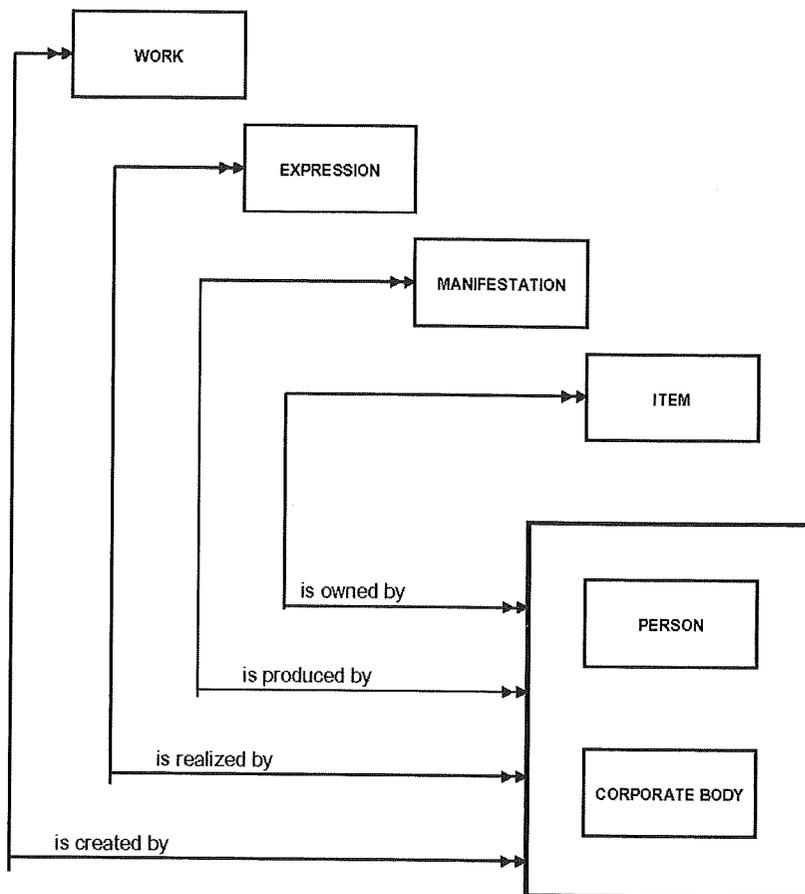


Figure 1.2. Group 2 Entities and "Responsibility" Relationships (source: *FRBR Report*, p. 14).

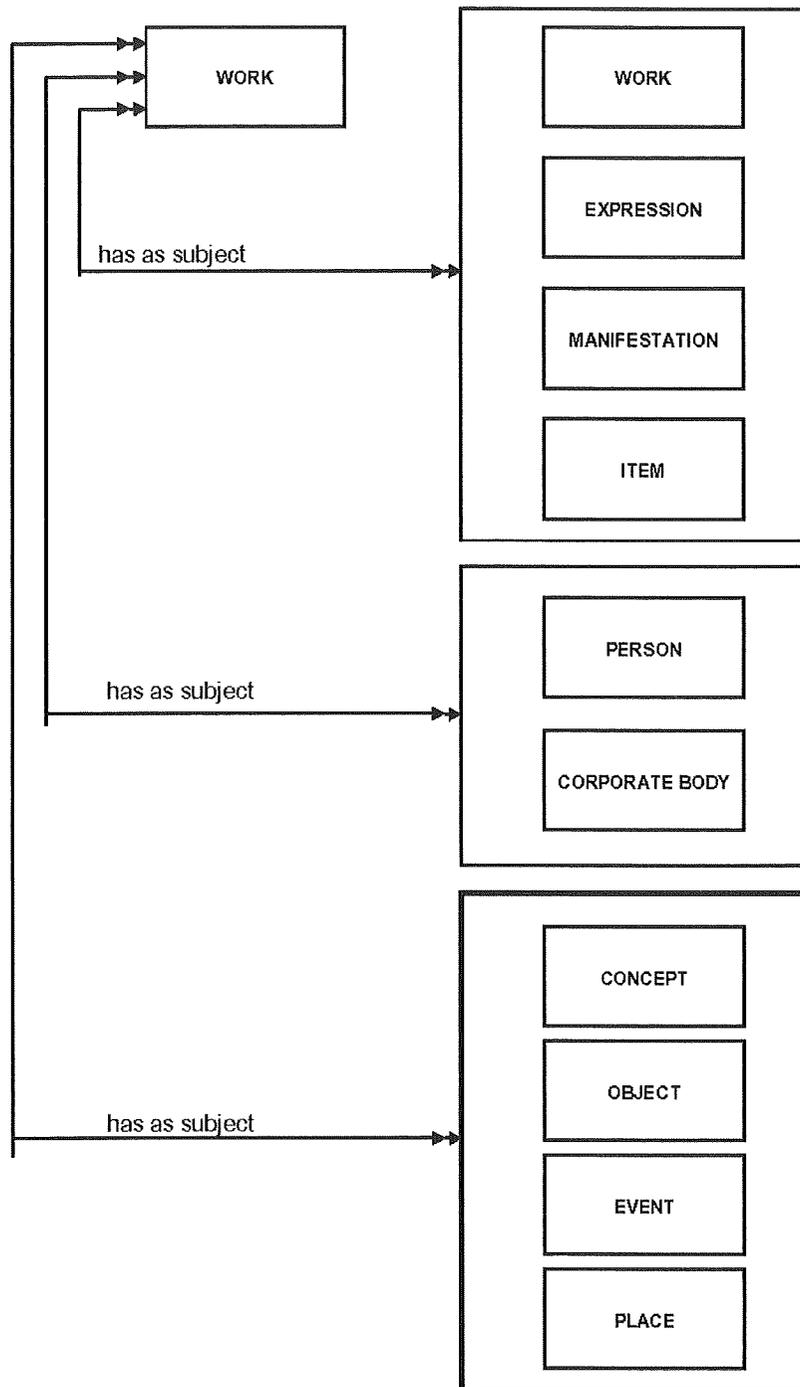


Figure 1.3. Group 3 Entities and "Subject" Relationships (source: *FRBR Report*, p. 15).

- adaptation (adaptation, paraphrase, free translation, musical variation, harmonization, musical fantasy)
- transformation (dramatization, novelization, versification, screenplay)
- imitation (parody, imitation, travesty)

In addition, there are whole/part relationships at the work-to-work level:

- whole/part (chapter, section, part, volume/issue, illustration for a text, sound aspect of a film, monograph in a series, journal article)

These examples are fairly text oriented. Music is also represented. Text orientation is also true of the *Anglo-American Cataloguing Rules Second Edition (AACR2R)*,¹² which is why it is so important to have cataloging manuals specifically oriented to different communities: for example, *Cataloging Cultural Objects (CCO)*¹³ for museums and special collections; *Describing Archives: A Content Standard (DACs)*¹⁴ for archives. Also, because of the text orientation of FRBR, it is more challenging to apply the model to works that are basically nontextual.

The list of relationship types for expression-to-expression has a few relationships in addition to the work-to-work and expression-to-work relationships:

- abridgment (abridgment, condensation, expurgation)
- revision (revised edition, enlarged edition, state (graphic))
- translation (literal translation, transcription (music))
- arrangement (music)
- successor [and the rest of the same list under "work-to-work relationships"]

Whole/part relationships for expression-to-expression relations are much the same as those for work-to-work, although the specific kinds of parts are somewhat different:

- whole/part (table of contents, volume/issue, illustration for a text, sound aspect of a film, amendment, monograph in a series, journal article, intellectual part of a multipart work)

Manifestation-to-manifestation relationships involve manifestations of the same expression, so there is no manifestation-to-expression or manifestation-to-work table.

The relationship types for manifestation-to-manifestation relationships are called "Reproduction" and "Alternate."

- The kinds of reproduction listed are reproduction, microreproduction, macroreproduction, reprint, photo-offset reprint, facsimile, and mirror site.

- The kinds of alternates listed are alternate format and simultaneously released edition.

Whole/part relationships at the manifestation level are given as volume of a multivolume manifestation, soundtrack for a film on separate medium, and soundtrack for a film embedded in film.

Tables are also given for a manifestation-to-item relationship (reproduction) and item-to-item relationships (reconfiguration and reproduction). Such a relationship would be expressed when the reproduction or reconfiguration results in only one specific item.

User Tasks

Finally, FRBR maps the attributes and relationships to user tasks:

- to *find* entities that correspond to the user's stated search criteria
- to *identify* an entity
- to *select* an entity that is appropriate to the user's needs
- to acquire or *obtain* access to the entity described

One can see some evolution of these from Cutter's "Objects" and from the purposes of a catalog in the Paris Principles. Charles A. Cutter stated his functions for catalogs in his *Rules for a Dictionary Catalog* in 1904:

Objects

1. To enable a person to find a book of which either
 - (A) the author
 - (B) the title
 - (C) the subject } is known.
2. To show what the library has
 - (D) by a given author
 - (E) on a given subject
 - (F) in a given kind of literature.
3. To assist in the choice of a book
 - (G) as to its edition (bibliographically).
 - (H) as to its character (literary or topical).¹⁵

The Paris Principles (1961) state that the catalog should be an efficient instrument for ascertaining:

- 1) whether the library contains a particular book specified by:
 - a) its author and title, *or*
 - b) if no author is named in the book, its title alone, *or*
 - c) if author and title are inappropriate or insufficient for identification, a suitable substitute for the title,

- and 2) a) which works by a particular author *and*
b) which editions of a particular work are in the library.¹⁶

In FRBR, the user tasks are plotted into tables with the entities, attributes, and relationships. Symbols are used to indicate the relative importance of each attribute or relationship in supporting a specific user task with respect to each entity. These tables should be of most use to system designers in identifying ways to allow searching and to display records so that users can find, identify, select, and obtain what they need.

Practical Applications

Several countries have already moved to implement systems based on FRBR; the United States is somewhat slow in this regard. *AACR2R* is being revised (as *RDA: Resource Description and Access*) to explain rules in the context of entities, attributes, relationships, and user tasks. *RDA* will not change the creation of records at the manifestation level, but the structure of the new code will be affected by the FRBR user tasks and the FRBR attributes.

On the other hand, system design may be profoundly affected. OCLC (Online Computer Library Center) is using the FRBR model to plan and design future systems. VTLIS Inc.'s Virtua system¹⁷ is modeled on FRBR. People have been writing articles that address FRBR and system design. For example, Martha Yee analyzed work and expression identifiers in existing bibliographic and authority records and made recommendations for better indexing and display of works, expressions, and manifestations.¹⁸ According to Jennifer Bowen, "Most FRBR entities and attributes are already present in library catalog records, and the influence of FRBR can also be seen in existing library activities. FRBR is thus not something totally foreign, but a fresh, more rigorous way of thinking about what libraries already do that provides a basis for designing new ways to improve users' access to library resources."¹⁹

Model for Organizing Web Resources

The Resource Description Framework (RDF) is an infrastructure that enables the encoding, exchange, and reuse of structured metadata in an online environment. It uses XML as the means for exchanging and processing the metadata based on the premise that resources have properties (or attributes), properties have values, some values can be other resources with their own properties and values, and all these relationships can be linked within the framework (illustrated in Figure 1.4). This is quite similar to FRBR, making a comparison instructive. In FRBR, entities have attributes and attributes have values. In RDF, resources have properties and properties have values. Some of the RDF