

# Understanding FRBR as a Conceptual Model: FRBR and the Bibliographic Universe

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abridged by Lisa M. Fusco

## Functional Requirements for Bibliographic Records

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**F**unctional requirements for bibliographic records (FRBR) is a complex conceptual model that is not easy for everyone to understand. In this paper FRBR's status as a model is examined in detail – to explicate more fully what it is, what it is not and what it attempts to do. The focus of the discussion throughout this paper is the Group 1 entities: work, expression, manifestation and item. Several strategies are presented to clarify the more difficult abstract entities in FRBR, which are *work* and *expression*. Because FRBR is the most recent of a series of conceptual models used in library cataloging, models used prior to FRBR are described and compared to FRBR.

### Models

Models are used everywhere, from civil engineering to playtime in the back yard. Because they are used in so many contexts, one may encounter different meanings of the word model. A definition [1] that fits our purposes well is “a simplified description of a complex entity or process.” FRBR is a representation and simplified description of the bibliographic universe. It is a conceptual model with the primary purpose of improving cataloging records (a product), cataloging (a process) and catalogs (a technology). In essence, FRBR is a model of a model, if one considers that a bibliographic record is a representation of a document and so, in its own way, is as much a model as FRBR. If one considers a title page to be a representation of a document as well, and thus a model in its own right, FRBR is a model of a model of a model of a document.

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Conceptual models are theoretical models. Mäki, exploring the nature of models in an article for the *International Encyclopedia of the Social & Behavioral Sciences* [2], states that a theoretical model “often assumes away many complications while highlighting limited aspects of the object.” This statement describes a major strength of conceptual models, which is that they facilitate understanding and manipulation of complex entities by rendering them *less* complex. This characteristic is also a potential weakness, if critical aspects of what is modeled are somehow “assumed away.”

Conceptual models can model things, processes or abstractions – in other words, they can model almost anything at all. Of all of the things that a model can model, abstractions may be the most difficult. One reason is that the act of modeling, particularly the type of modeling that the creators of FRBR used, is often an attempt to make something that is abstract into something that is, at least in some senses, concrete. Considering that the FRBR Group 1 entities *work* and *expression* are abstractions, how do we make concrete something like “a distinct intellectual or artistic creation [a work]?” To use the FRBR entities *work* and *expression*, we have to find ways to make them identifiable. Fortunately, we have two types of evidence to verify the existence of *work* and *expression*: first, what documents say about themselves and what others say about them; and second, what people say when they want to find a document. A document may say about itself, “Translated from Amy Tan’s *Joy Luck Club* into Spanish by Jordi Fibla” or “*Rudden and Wyatt’s EU Treaties and Legislation*, edited by Derrick Wyatt, 8th edition; revision of *Basic Community Laws*, edited by Bernard Rudden and Derrick Wyatt, 7th edition.” These are statements found on title pages that identify expressions. A library user may ask a question like “Do you have Seamus Heaney’s translation of *Beowulf*?” (a request for an expression) or >

“Do you have Stephen Hawking’s *A Brief History of Time*?” (a request for a work). Upon further questioning, many such users do not have a particular item or even a particular manifestation in mind. What they are interested in are abstractions – the content, either at the expression or the work level. Were it not for the fact that library users ask such questions and initiate such searches, cataloging models including abstractions such as work and expression would not be needed. If they were not needed, they would never have been created by the cataloging community, regardless of statements made in items. We care about connecting users with the materials they seek; to do this well, we need the catalog to identify abstractions like work and expression.

FRBR is a very specific type of conceptual model – an entity-relationship (ER) model. ER modeling is a technique that specifies the structure of a conceptual model; in other words, it specifies the kind of things that have to be in it and the properties those things may have. A simplified explanation of the structure stipulated by an ER model is that three kinds of things are allowed in it: entities, attributes and relationships. *Entities* are things, either physical or abstract (so, an entity can be virtually anything); *relationships* are interactions among entities; and *attributes* are properties or characteristics of either entities or relationships. For example, one of the simpler FRBR entities is “object,” which is defined as “a material thing.” Objects have attributes such as “term,” thus, Seattle’s most conspicuous architectural object has the term attribute “Space Needle.” In the bibliographic universe, objects frequently have an aboutness relationship with works, so, the work *The Space Needle: Symbol of Seattle* is about the Space Needle.

Many people want to evaluate a conceptual model like FRBR using “true or false” criteria. While one can say that a model is “true” to the extent that it explains accurately and “false” to the extent that it does not, this is not a very helpful way to look at these models. A more useful way to evaluate these models is to ask whether they are successful at fulfilling their purposes. From this perspective, a model that

contains many inaccuracies could do a better job than one with few, because it is more successful at fulfilling its purpose. For example, some conceptual models are very complex – so complex that they are difficult for people to understand and implement. A complex model could fail quite easily if, because it was too complex, it was never used.

The developers of FRBR clearly state their goal: “The aim of the study was to produce a framework that would provide a clear, precisely stated, and commonly shared understanding of what it is that the bibliographic record aims to provide information about.” Thus, one of the main purposes of FRBR, in addition to creating better catalogs and cataloging records, is to promote a commonly shared understanding – a much desired goal in a bibliographic universe made increasingly complex by new and varied material types, user requirements and information systems.

### Other Cataloging Models

One of the clearest ways to understand the Group 1 entities model in FRBR is to look at it in the context of other models that have been used in the history of cataloging. A review of historical trends suggests that the cataloging community’s view of the object of its work – the document – has become increasingly complex. Perhaps that is not unexpected, given the availability of increasingly varied document types and the increased complexity of our retrieval environments. Although this discussion is framed historically, the progression presented is not strictly chronological. **One-Entity Model.** Many early library catalogs were inventories, simple lists of items owned by a particular library. The model being used in any document inventory is a “one-entity model,” in that the only entity recognized is “item” or “copy.” Rare book or manuscript catalogs are one-entity catalogs when the only entity being described is a single physical document. **Two-Entity Model.** As library collections grew, and libraries collected multiple editions of a work more often, catalogs began to function as retrieval systems as well as inventories. Cataloging records in these catalogs >

FIGURE 1. Two-entity model
Partial result of “Shakespeare, William” author search, results organized by title proper
First part of Henry the fourth
First part of the history of Henry IV / edited by M. A. Shaaber
First-second part of the history of Henry IV
Hamlet
Henry IV part I and Henry IV part II
Henry IV. Part one. / William Shakespeare; edited by David Bevington ...
Henry the Fifth: a historical play in five acts
Henry the Fourth. Part I / general introduction by David G. Pitt
Henry the Fourth, Part I / edited by David Bevington
History of King Henry the Fourth, part I
King Henry IV
King Henry the Fourth Part I
Second part of Henry the Fourth
Second part of the history of Henry IV
Shakespeare’s Hamlet, the second quarto, 1604
Shakespeare’s second part of King Henry IV
Shakespeare’s Tragedy of Hamlet

CARLYLE, continued

**FIGURE 2. Three-entity model**

Partial result of “Shakespeare, William” author search, results organized by uniform title/title proper (when title proper is the uniform title), then by title proper [title proper in brackets]

Hamlet
Hamlet [Shakespeare’s Hamlet, the second quarto, 1604]
Hamlet [Shakespeare’s Tragedy of Hamlet]
King Henry IV
King Henry IV [First part of Henry the fourth]
King Henry IV [First part of the history of Henry IV / edited by M. A. Shaaber]
King Henry IV [First-second part of the history of Henry IV]
King Henry IV [Henry IV part I and Henry IV part II]
King Henry IV [Henry the Fourth, Part I / [edited by] David Bevington]
King Henry IV [Henry the Fourth. Part I / general introduction by David G. Pitt]
King Henry IV [Henry IV. Part one. / William Shakespeare; edited by David Bevington and . . .]
King Henry IV [History of King Henry the Fourth, part I]
King Henry IV [King Henry the Fourth Part I]
King Henry IV [Second part of Henry the Fourth]
King Henry IV [Second part of the history of Henry IV]
King Henry IV [Shakespeare’s second part of King Henry IV]
King Henry V [Henry the Fifth: a historical play in five acts]
Shakespeare’s second part of King Henry IV
Shakespeare’s Tragedy of Hamlet

represented *editions* as well as copies. Looking at these cataloging records now, one can see the distinction between edition (analogous to manifestation) and copy (item) quite clearly. In Figure 1, a partial result from an author search on “Shakespeare, William” in a typical online catalog is presented. Assuming that the selection of any title presented would result in a record in which call numbers for copies are presented, this catalog display represents a two-entity model: edition and copy. Any catalog that does not use uniform titles as filing titles, which collocate manifestations representing a work, would exemplify this model.

**Three-Entity Model.** Any library catalog using uniform titles consistently as filing titles is a catalog that exemplifies a three-entity model: copy, edition and work. The three-entity model is currently supported, although not required in the *Anglo-American Cataloguing Rules*, 2nd ed. (AACR2) [3]. In Figure 2, the same partial results for an online catalog author search on “Shakespeare, William” are presented. This catalog display collocates editions of Shakespeare’s works by using uniform title and then subarranges each work by title proper (representing manifestations). Notice that multiple expressions are present in the display, but they are not

collocated – see the two manifestations of an expression of King Henry IV, Part I edited by David Bevington. The lack of collocation indicates that the expression entity is not recognized. In library catalogs, at least at present, collocation of editions or manifestations is what identifies the work and expression entities.

**Four-Entity Model.** In Figure 3, the example from the previous two figures has been configured to illustrate a four-entity model. In this figure, identical expressions are displayed on a single line in a level one display. Thus, 13 separate entries for Henry IV have been reduced to six. One of the great advantages of FRBR-based displays is that long displays may be made much shorter, enhancing the intelligibility and browsability of results. Note that parts have been displayed here as separate expressions, although the display could be shortened further by collapsing all editions of part one together or by combining the parts with the whole.

### Viewing Group 1 Entities as Sets

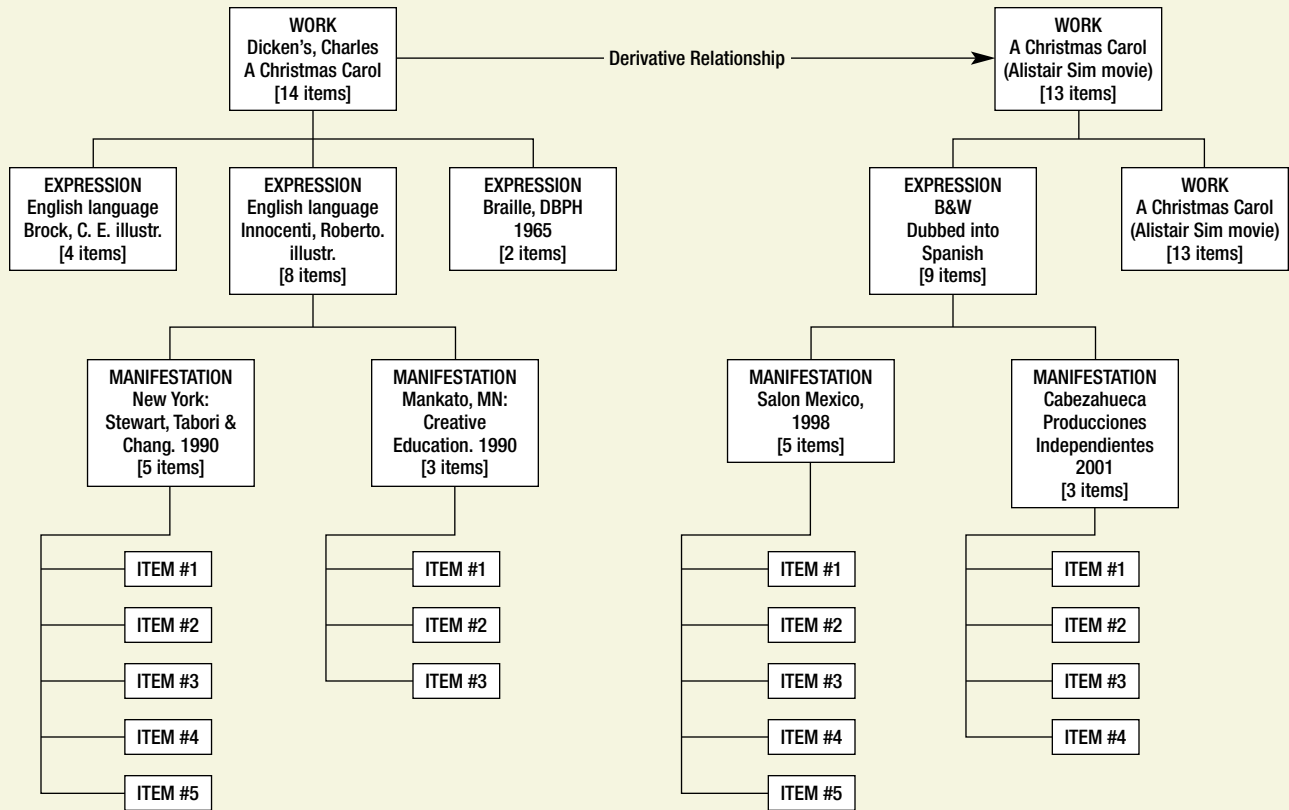
Another way to clarify the definitions of the Group 1 entities is to present them as sets. One of the great advantages of sets is that they facilitate the conversion of abstractions such as work and expression into physically identifiable (or imaginable) units. The easiest entity to understand is the item entity, because it is physically identifiable. But, if we imagine manifestation, expression and work as sets of items, they become observable as groups of items in our imaginations.

In Figure 4, two related works are represented at the top of the chart. These two works may be viewed as sets of the items represented at the bottom of the chart. The two works are Charles Dickens’ *A Christmas Carol* and a work that is derived from it, the movie *A Christmas Carol*, starring Alastair Sim. This division between the two as >

**FIGURE 3. Four-entity model**

# of records	Partial result of “Shakespeare, William” author search, results organized by uniform title/expression attribute
3	Hamlet
1	Hamlet [Shakespeare’s Hamlet, the second quarto, 1604]
3	King Henry IV
3	King Henry IV Part 1.
1	King Henry IV. Part 1. [edited by David Bevington]
2	King Henry IV. Part 1. [edited by M.A. Shaaber]
1	King Henry IV. Part 1. [general introduction by David G. Pitt]
3	King Henry IV. Part 2.
1	King Henry V

FIGURE 4. FRBR Group 1 entities viewed as sets of items



separate works reflects current cataloging rules, which consider a film version of a text to be a modification of content reflecting a change in responsibility, thus, a new work. The film shares a derivative relationship with the text and in a catalog implementing FRBR, the derivative relationship between these two works would be made explicit. On the next level down are sample expressions of each of the two works. The textual version is embodied in three expressions: two English language versions, each with a different illustrator, and a Braille version. The film version is embodied in two expressions: one a black and white version dubbed into Spanish and the other the original black and white version.

At the bottom of Figure 4 are items. On the left, five items comprise the Stewart, Tabori & Chang manifestation of Dickens' work, and three items comprise the Creative Education manifestation. These two manifestations of Dickens' work share the same alphanumeric string and the same illustrations, and so together may be seen as comprising a unique English-language expression of Dickens' work. This expression is, thus, represented by a total of eight items. Adding together the items representing

this expression, the Braille expression shown on the right and the English version with C. E. Brock's illustrations shown on the left, the Charles Dickens' work *A Christmas Carol* is represented as comprising 14 items total. In reality, Dickens' work is represented by a great many more items, manifestations and expressions. A possible online catalog view of these works is presented in Figure 5. >

FIGURE 5. FRBR-based online catalog display, based on sets displayed in Figure 4.

A Christmas Carol / Charles Dickens [14 copies] WORK 1	
1	English: C.E. Brock, illustrator [4 copies] Expression 1
2	English: Roberto Innocenti, illustrator [8 copies] Expression 2
3	New York: Stewart, Tabori & Chang, 1990 [5 copies] Manifestation 1
4	Mankato, MN: Creative Education, 1990 [3 copies] Manifestation 2
5	Braille, DBPH, 1965 [2 copies] Expression 3
A Christmas Carol [motion picture, 1951] WORK 2	
1	B & W / English [4 copies] Expression 1
2	B & W / Spanish (dubbed) [9 copies] Expression 2
3	Salon Mexico, 1988 [5 copies] Manifestation 1
4	Cabezahueca Producciones Independientes, 2001 [4 copies] Manifestation 2

CARLYLE, continued

**Document Description Using FRBR**

As a cataloger, I work with an item. But, when I see an item on a screen or hold it, I am also seeing and holding a particular manifestation of a particular expression of a particular work. To create a cataloging record, I determine a main entry (work) citation, usually consisting of a creator's name and a title or uniform title or a title or uniform title by itself – attributes describing the work. I also record information about translators of texts, scales of maps, playing times of CDs – attributes describing expressions. I transcribe places of publication, publisher names and dates of publication – attributes describing manifestations. I create call numbers and add holdings information – attributes describing items. In creating a cataloging record, I encounter and describe each entity, because the item represents each entity simultaneously.

**Conclusion**

All of the activities required to identify the Group 1 entities – determining work citation, transcribing information about translations and publishers, and creating holdings records – are activities that catalogers do now, every day, when they catalog. These activities will remain largely the same when FRBR is implemented, regardless of the precise nature of the implementation. The important changes that FRBR may bring are changes in cataloger consciousness and changes in online catalog displays. While AACR2 has always included the possibility of identifying works in the catalog, current rules are somewhat obscure about how this is accomplished and have made work identification optional.

The Joint Steering Committee for the Revision of the Anglo-American Cataloguing Rules has stated that the next revision of the rules, to be called Rules for Description and Access (RDA), will incorporate aspects of the FRBR model [4]. This new set of rules, incorporating FRBR entities, should make the process of identification of the particular entities comprising a document much clearer for catalogers than it is now. This clarification will also make understanding why we do what we do easier, placing cataloger taste and judgment on a solid foundation. More important, successful implementations of FRBR will help catalog users perform successful searches by presenting information about complex works in helpful and intelligent ways.

**Resources**

- [1] *Hyperdictionary*, s.v. "Model." Retrieved July 2, 2004, from [www.hyperdictionary.com/search.aspx?define=model](http://www.hyperdictionary.com/search.aspx?define=model).
- [2] Mäki, U. (2001). Models, metaphors, narrative, and rhetoric: Philosophical aspects. In *International Encyclopedia of the Social & Behavioral Sciences* (p. 9932). Amsterdam: Elsevier.
- [3] *Anglo-American Cataloguing Rules*, (2002). 2d ed. rev. Ottawa: Canadian Library Association.
- [4] Joint Steering Committee for the Revision of the Anglo-American Cataloguing Rules, (2005). *Prospectus for RDA: Resource Description and Access*. The Committee. Retrieved November 8, 2005, from [www.collectionscanada.ca/jsc/rdaprospectus.html](http://www.collectionscanada.ca/jsc/rdaprospectus.html).