Functional Requirements for Bibliographic Records, 2002–2004

by Magda El-Sherbini

The impetus behind the Functional Requirements for Bibliographic Records (FRBR) model dates back to Barbara Tillett's dissertation, Bibliographic Relationships: Toward a Conceptual Structure of Bibliographic Information Used in Cataloging (1989). There Tillett provides the groundwork for understanding the conceptual structure of the library catalog in terms of bibliographic relationships. The research presented consists of an analytical study and an empirical study. The analytical study looks at various devices used in the past for relating bibliographic entities, as documented in 24 sets of cataloging codes, from Panizzi's '91 Rules' through the second edition of the Anglo-American Cataloging Rules, and considers both the historical rationale for the devices and their importance in the design process for future catalogs and cataloging codes. To achieve this end, it operationally identifies and categorizes bibliographic relationships in taxonomy. The seven types of bibliographic relationships are: equivalence relationships, derivative relationships, descriptive relationships, whole-part relationships, accompanying relationships, sequential relationships, and shared characteristic relationships. The empirical study indicates frequencies of occurrence of bibliographic relationships in the 1968-July 1986 machine-readable database of the Library of Congress and correlates frequencies with five factors: bibliographic format, general subject, publication date, language, and country of publication.

Interest in the concept of FRBR gained momentum among librarians and researchers after the International Federation of Library Associations and Institutions (IFLA) issued its "Functional Requirements for Bibliographic Records Final Report" (1998). Since then numerous books, articles, bibliographies and on-line presentations on the subject have appeared. This bibliographical essay documents ample evidence of the continuing and expanding interest in FRBR, even while focusing only on the English language work that appeared between 2000 and 2004.

General Works

IFLA's "Functional Requirements for Bibliographic Records Final Report" is now available in both print and electronic formats, and has been translated into many languages (including Italian, Slovenian, Norwegian, French, Czech, Japanese, Korean and Spanish). It consists of three parts. The first part (chapters 1–2) covers the background of the study, its

approach, areas for further study, and the study's objectives, scope, and methodology. The second part (chapters 3–6), the core of the report, gives an entity-relationship model of a bibliographic database. The third part (chapter 7) deals with the basic requirements for national bibliographic records. The report also contains an appendix that correlates the logical attributes defined in Chapter 4 with the data elements defined in the ISBDs, the Guidelines for Authority and Reference Entries, and the UNIMARC Manual.

The IFLA Cataloguing Section formed a Working Group on FRBR in 2002. The mission of this group was to support the development of the conceptual model and to encourage the implementation of FRBR as a data model and a reference model for the bibliographic universe. This Working Group was transformed in 2003 into the FRBR Review Group. As a means to support this model, IFLA's FRBR Review Group (2003) issued and maintains a complete FRBR Bibliography. This bibliography, which is freely available in PDF format and will be updated regularly, is divided into seven sections:

1. FRBR Final Report
2. Theoretical aspects
3. Impact on current standards
4. Application studies
5. Implementations and research projects
6. Relationships to other models and topics
7. Teaching FRBR.

Tillett (2003, 2004) provided brief overviews of FRBR. Her pamphlet, "What is FRBR?," adapted from an earlier article, outlines the background of the development of the functional requirements, the concepts involved and their potential impact on cataloging rules, bibliographic structures and systems design for cataloging applications.

OCLC Research (2003) expressed a commitment to continue investigating and experimenting with the FRBR model, predicting that "having resources brought together as 'works' will help users sift through the myriad information resources available digitally; widespread adoption of FRBR will produce major changes to bibliographic databases, including OCLC's WorldCat." The quote is from OCLC's web page "OCLC research activities and the IFLA's Functional Requirement for Bibliographic Records," a useful source of information on the topic with links to selected publications and presentations.

Le Boeuf (2003) described the "Brave New FRBR World"—laying out what FRBR is and isn't, and what it does and doesn't do—generating a response article from DePanicis et al (2003). LeBoeuf (2004) also edited a special issue of Cataloging and Classification Quarterly devoted to FRBR. In this compendium, "FRBR: Hype, or Cure-All?" the authors describe the challenges that accompany implementation of FRBR, and how this abstract approach to cataloging can be a useful, practical tool to help improve library systems.

The Australian Committee on Cataloging (ACON) (2004) conducted a seminar in February 2004 on "Revolution or Evolution? The Impact of FRBR." This seminar provided an introduction to FRBR concepts and a description of FRBR implementation and research projects; the seminar's papers and PowerPoint presentations are available online.

Case Studies and Applications

OCLC Research has undertaken several projects to examine FRBR and to determine how best to implement the model. O'Neill (2002) studied and examined the effect of applying the FRBR model to a single work, "The Expedition of Humphrey Clinker." He concluded that the FRBR model provides a powerful means to improve bibliographic organization and navigation. Another experiment with the FRBR model on a bibliographic record was described in an article by Hickery, O'Neill, and Toves (2002).

Chen and Chen (2004) used the National Palace Museum (NPM) in Taipei as a case study, finding the FRBR model useful for metadata analysis and implementation. Taniguchi wrote two articles on FRBR. In her first article (2002) she proposes a conceptual model for cataloging which gives primacy to expression-level bibliographic entity, with the aim of approaching critical issues in cataloging, such as the so-called "format variation" and "content versus carrier" issues. In her second article (2004) she proposes a method to design cataloging rules by utilizing conceptual modeling of the cataloging process and also by applying the concept "orientedness."

In "The Concept of a Work in WorldCat: An Application of FRBR," Bennett, Lavoie, and O'Neill (2003) "explore the concept of a work in WorldCat, the OCLC Online Union Catalog, using the hierarchy of bibliographic entities defined in the Functional Requirements for Bibliographic Records report. A methodology is described for constructing a sample of works by applying the FRBR model to randomly selected WorldCat records. This sample is used to estimate the number of works in WorldCat, and describe some of their key characteristics. Results suggest that the majority of benefits associated with applying FRBR to WorldCat could be obtained by concentrating on a relatively small number of complex works."

Ayres, et al., (2002) authored a "Report on the successful AustLit: Australian Literature Gateway implementation of the FRBR and INDECS event models, and implications for other FRBR implementations." The renewal of the Soggettario (Subject headings for Italian libraries) in light of FRBR was discussed by Buizza and Guerrini (2002). In their article, the subject was analyzed as a relation between the entities in the third group: concept, object, event, place and the entity work. The model identifies the logical entities, attributes and relationships, which run between the entities.

Impact on Cataloging Standards Such as MARC, AACR2, and the ISBD

Denton (2003), Riva and Curran (2003) and Danskin (2004) considered the impact of FRBR on common cataloging standards. Oliver (2004) examined the relation of FRBR to the

issue of format variation, or content vs. carrier. Riva (2004) applied FRBR and Tillett's bibliographic taxonomy to the MARC21 linking entry fields.

The Library of Congress (2004) devoted a section of their MARC standards web page to information regarding the relationship between the MARC 21 formats and FRBR. The web site includes reports on functional analysis of the MARC 21 bibliographic and holdings formats; display for multiple versions from MARC 21 and FRBR; JSC format variations Working Group update to MARBI; and FRBR display tools.

In their recently completed project, Hegna and Murtomaa (2003) analyzed MARC data from two national bibliographies in light of the data model presented in FRBR. They offered two suggestions for OPAC user interfaces, based on the ideas of the FRBR study and the results of their project. Andersen (2003) discussed the future of MARC and outlined how future cataloging practice and bibliographic records might be impacted by FRBR. IFLA's ISBD Review Group (2004) mapped the ISBD elements to FRBR entity attributes and relationships.

The Association of Library Collections and Technical Services (ALCTS) (2004) held a preconference in June 2004 devoted to FRBR's influence on the future development of information standards within the library community. The pre-conference, which was prepared by the Cataloging and Classification Section's Committee on Cataloging: Description and Access (CCS/CC:DA) and was sponsored by the Machine-Readable Bibliographic Information Committee (MARBI), acquainted technical services and IT professionals with some implications of the FRBR model for cataloging rules, MARC formats and other emerging standards for electronic technologies.

Works Cited

ALCTS, Cataloging and Classification Section. Committee on Cataloging: Description and Access. Back to the future: understanding the Functional Requirements of Bibliographic Records model (FRBR) and its impact on users, OPACs, and knowledge organization. Preconference. June 2004. Accessed 22 Sep. 2005,

Andresen, Leif. "After MARC — What Then?" Library Hi Tech 22, no. 1 (2003): 40–51.

Australian Committee on Cataloging. Seminar on Revolution or Evolution? The Impact of FRBR, 2004. Accessed 22 Sep. 2005, www.nla.gov.au/lis/stndrds/grps/acoc/acocseminar2004.html.

Ayres, Marie-Louise, et al. "Report on the Successful AustLit: Australian Literature Gateway Implementation of the FRBR and INDECS Event Models, and Implications for Other FRBR Implementations." International Cataloguing and Bibliographic Control 32 no.1 (Jan./Mar. 2002): 8–13.

Bennett, Rick, Brian F. Lavoie, and Edward T. O'Neill. "The Concept of a Work in WorldCat: An Application of FRBR." Library Collection, Acquisitions, and Technical Services 27, no. 1 (spring 2003): 45–59.

Buizza, Pino and Mauro Guerrini. "A Conceptual Model for the New Soggettario: Subject Indexing in the Light of FRBR." Cataloging & Classification Quarterly 34, no. 4 (2002): 31–45.

Chen, Ya-ning and Shu-jiun Chen. "A Metadata Practice of the IFLA FRBR Model: A Case Study for the National Palace Museum in Taipei." Journal of Documentation 60, no. 2 (2004): 128–43.

Danskin, Alan. "Mature Consideration: Developing Bibliographic Standards and Maintaining Values." New Library World 105, no. 3–4 (2004): 113–17.

Denton, William. "FRBR and Fundamental Cataloguing Rules, 2003." Accessed 22 Sep. 2005, www.miskatonic.org/library/frbr.html.

DePanicis, Maria, et al. "Notes and Consideration on Brave New FRBR World, 2003." Accessed 22 Sep. 2005, www.ddb.de/news/pdf/papers_brave2.pdf.

Hegna, Knut and Eeva Murtomaa. "Data Mining MARC to Find: FRBR?" International Cataloging and Bibliographic Control 32, no. 3 (July/Sept. 2003): 52–55.

Hickey, Thomas B, Edward T. O'Neill, and Jenny Toves. "Experiments with the IFLA Functional Requirements for Bibliographic Records (FRBR)." D-Lib Magazine 8, no. 9 (2002). Accessed 22 Sep. 2005, www.dlib.org/dlib/september02/hickey/09hickey.html.

IFLA. FRBR Review Group. "FRBR Bibliography. Version 7.0." 2003. Accessed 22 Sep. 2005, www.ifla.org/VII/s13/wgfrbr/bibliography.htm.

IFLA. ISBD Review Group. "Mapping ISBD Elements to FRBR Entity Attributes and Relationships." International Cataloging and Bibliographic Control 33, no. 2 (2004): 22. Accessed 22 Sep. 2005, www.ifla.org/VII/s13/pubs/ISBD-FRBR-mappingFinal.pdf.

IFLA Study Group on the Functional Requirements for Bibliographic Records. " Functional Requirements for Bibliographic Records: Final Report." Munich, Germany: K. G. Saur, 1998. Accessed 22 Sep. 2005, English: www.ifla.org/VII/s13/frbr/frbr.pdf, or www.ifla.org/VII/s13/frbr/frbr.htm

Norwegian: www.nb.no/katkom/frbr/4nbmkap1.htm

French: www.bnf.fr/pages/infopro/normes/pdf/FRBR.pdf

Czech: webarchiv.nkp.cz/frbr.pdf

Japanese: www.tezuka-gu.ac.jp/public/seiken/sub3/ben103.html

Korean: www.nl.go.kr/FRBR/seji_report.html

Spanish: www.loc.gov/catdir/cpso/frbr.html

Le Boeuf, Patrick. "FRBR: Hype, or Cure-all?" Cataloging & Classification Quarterly 39, no. 3–4 (2004).

———. "Brave New FRBR World, 2003." Accessed 22 Sep. 2005, www.ddb.de/news/pdf/papers_leboeuf.pdf.

Library of Congress. Network Development and MARC Standards Office. MARC and FRBR, 2004. Accessed 22 Sep. 2005, www.loc.gov/marc/marc-functional-analysis/frbr.html.

OCLC Research. OCLC Research activities and IFLA's Functional Requirements for Bibliographic Records, 2003. Accessed Sep. 22, 2005, www.oclc.org/research/projects/frbr/.

Oliver, Chris. "FRBR Is Everywhere, but What Happened to the Format Variation Issue? Content Versus Carrier in FRBR." The Serials Librarian 45, no. 4 (2004): 27–36.

O'Neill, Edward T. "FRBR: Functional Requirements for Bibliographic Records: Application of the Entity-relationship Model to Humphry Clinker." Library Resources & Technical Services 46, no. 4 (2002): 150–59.

Riva, Pat. "Mapping MARC 21 Linking Entry Fields to FRBR and Tillett's Taxonomy of Bibliographic Relationships." Library Resources & Technical Services 48, no. 2 (2004): 130–43.

Riva, Pat and Mary Curran. "Defining the Boundaries: FRBR, AACR, and the Serial." The Serials Librarian 45, no. 3 (2003): 15–21.

Taniguchi, Shoichi. "Design of Cataloging Rules Using Conceptual Modeling of Cataloging Process." Journal of the American Society for Information Science and Technology 55, no. 6 (2004): 498–512

———. "A Conceptual Model Giving Primacy to Expression-level Bibliographic Entity in Cataloging." Journal of Documentation 58, no. 4 (2002): 363–82.

Tillett, Barbara B. "What Is FRBR: A Conceptual Model for the Bibliographic Universe." 2004. Accessed 22 Sept. 2005, www.loc.gov/cds/FRBR.html.

———. "FRBR (Functional Requirements for Bibliographic Records)." Technicalities 23, no. 5 (Sept./Oct. 2003): 1: 11–13.

———. "Bibliographic Relationships: Toward a Conceptual Structure of Bibliographic Information Used in Cataloging." Ph.D. dissertation: University of California, Los Angeles, 1989.