Chapter 4

FRBR: Relation to Other Models and Topics

Turbulence is life force. It is opportunity. Let's love turbulence and use it for change.[1]

ABC

"ABC: A Logical Model for Metadata Interoperability"
www.ilrt.bris.ac.uk/discovery/harmony/docs/abc/abc_draft.html

This URL provides access to "a strawman document to initiate discussion of a common conceptual model to facilitate interoperability among application metadata vocabularies." ABC is conceptually based on the Warwick Framework and the Resource Description Framework (RDF). It attempts, according to this draft, to address the interoperability of multiple metadata packages by formally defining common relationships and entities between various metadata modules, to describe them in a simple logical model, and to provide a framework for extension of the semantics to application- and domain-specific metadata vocabularies. The rest of the document is a description of the architecture, data modeling, mapping rules, vocabulary, and open issues. The individuals listed as the "parties responsible" for this document are Dan Brickley, Jane Hunter, and Carl Lagoze.

"Towards a Core Ontology for Information Integration"
http://jodi.tamu.edu/Articles/v04/i01/Doerr
www.cs.cornell.edu/lagoze/papers/Core_Ontology.pdf

This 2003 article by Martin Doerr, Jane Hunter, and Carl Lagoze appeared in the *Journal of Digital Information*; it examines two major architectures for information integration: the CIDOC/CRM, an ontology in the cultural heritage and museum communities; and the ABC ontology, a model designed for the exchange and integration of digital library information.[2] The authors look at harmonizing the two ontologies.

"ABC Harmony Data Model Version 2"
www.metadata.net/harmony/ABCV2.htm

This online document is dated June 18, 2001, and at that point, the ABC ontology became part of the JISC/NSF/DSTC sponsored Harmony project (www.ilrt.bris.ac.uk/discovery/harmony), which examined complex multimedia resources in digital libraries, their metadata, and their vocabularies. ABC classes and properties are specifically defined and detailed here, along with class hierarchy diagrams, and specific modeling examples.

"The Application of an Event-Aware Metadata Model to an Online Oral History Project"
www.itee.uq.edu.au/~eresearch/papers/2000/OralHistory/paper.html
www.itee.uq.edu.au/~jane/jane-hunter/OralHistory/paper.html

These URLs provide access to a case study (by Jane Hunter and Darren James) of the ABC/Harmony ontology model, as applied to a complex multimedia oral history archive. A database with a searchable and browsable Web interface, as well as indexing tools, were developed as a test bed of the ABC Harmony model.

"MetaNet: Metadata Term Thesaurus to Enable Semantic Interoperability between Metadata Domains"
http://jodi.tamu.edu/Articles/v01/i08/Hunter

This *Journal of Digital Information* article (2001) by Jane Hunter describes the development of an XSLT/RDF schema to produce MetaNet, a metadata term thesaurus that enables dynamic and flexible mapping among metadata standards and is based on the ABC Harmony model.[3]

"The ABC Ontology and Model"
http://jodi.ecs.soton.ac.uk/Articles/v02/i02/Lagoze
http://jodi.ecs.soton.ac.uk/Articles/v02/i02/Lagoze/lagoze-final.pdf

Another article by Lagoze and Hunter appearing in the peer-reviewed *Journal of Digital Information* (2002), this work presents more information on the integration of CIMI and RDF in the ABC ontology and model.[4]

"An Event-Aware Model for Metadata Interoperability"
www.cs.cornell.edu/lagoze/papers/ev.pdf (paper)
www.dli2.nsf.gov/ukworkshop/presentations/lagoze_cornell/lagoze_cornell.pdf (presentation)

The abstract of this paper by Carl Lagoze, Jane Hunter, and Dan Brickley on the ABC model states: "We describe the ABC modeling work of the Harmony Project. The ABC model provides a foundation for understanding interoperability of individual metadata modules—as described in the Warwick Framework—and for developing mechanisms to translate them. Of particular interest in this model is an *event*, which facilitates understanding of the lifecycle of resources and the association of metadata descriptions in this lifecycle."[5] The paper is accompanied by a presentation (see second URL) that includes helpful graphics.

"Business Unusual: How 'Event-Awareness' May Breathe Life into the Catalog?"
www.cs.cornell.edu/lagoze/papers/lagozelc.pdf
www.loc.gov/catdir/bibcontrol/lagoze_paper.html (final version)

This paper by Lagoze was prepared for the Bicentennial Conference on Bibliographic Control for the New Millennium (Library of Congress, November 15–17, 2000) and proposes radical changes in the use of the library catalog and the model upon which it is based. It describes why the changes are necessary and what will happen if they aren't adopted.

"Bibliographic Relations"
www.dli2.nsf.gov/dlione/berkeley/weinstein/index.htm

This formal ontology of bibliographic relations (March 3, 1998) by Peter Weinstein (University of Michigan Digital Library) improves on the IFLA work hierarchy and uses the Loom description logic, in an attempt to generate a knowledge-based collection of MARC metadata and a Web demonstration of the results.

"Ontology-Based Metadata"
www-personal.umich.edu/~peterw/Ontology/Beethoven/demo.html

A more detailed by description (also by Peter Weinstein) with graphics of the Weinstein ontology-based model, with access to the Beethoven knowledge base that incorporates it. The contents for this online document includes: "Bibliographic Relations"; "Generating the Knowledge-Base"; "Potential Benefits"; "People"; and "Publications."

"Ontology-Based Metadata: Transforming the MARC Legacy"
www-personal.umich.edu/~peterw/Ontology/beethoven.paper.rtf

This document by Peter Weinstein (frome the Proceedings of the Third Association for Computing Machinery [ACM] Digital Library Conference, Pittsburgh, Pennsylvania, 1998) presents more description of the Beethoven knowledge-base constructed on the formal metadata ontology model described by Weinstein.

"Publication Abstract"
www-personal.umich.edu/~peterw/abstracts.html

This online document provides access to abstracts (1998) by Peter Weinstein of various papers and presentations by Weinstein from 1990–2000.

"Seed Ontologies: Growing Digital Libraries as Distributed, Intelligent Systems"
www-personal.umich.edu/~peterw/Ontology/seed.paper.rtf

This document by Peter Weinstein and Gene Alloway covers moving the ontology-based metadata model to digital library development (from the Proceedings of the Second International ACM Digital Library Conference, Philadelphia, Pennsylvania, 1997).

"UMDL Ontology Concept Description"
www-personal.umich.edu/~peterw/Ontology/ontology.html
www-personal.umich.edu/~peterw/Ontology/sca.ontology.html
www.si.umich.edu/UMDL/May97Preso/Weinstein%20-%20SMS/index.htm

The URLs listed above describe the University of Michigan Digital Library (UMDL) ontology (by Peter Weinstein, 1998).

<indecs>

"A Common Model to Support Interoperable Metadata: Progress Report on Reconciling Metadata Requirements from the Dublin Core and INDECS/DOI Communities"
www.dlib.org/dlib/january99/bearman/01bearman.html

The INDECS model—one geared toward e-commerce and rights management—is based on FRBR, and this 1999 article in *D-Lib Magazine* examines the harmonization of the Dublin Core and the INDECS/DOI community of authors, rights' holders, and publishers in their expression of metadata for information resources.[6] Authors include: David Bearman (Archives & Museum Informatics);

Godfrey Rust (Data Definitions); Stuart Weibel (OCLC); Eric Miller (OCLC); and Jennifer Trant (Art Museum Image Consortium).

"The INDECS Metadata Framework: Principles, Model, and Data Dictionary"
www.indecs.org/pdf/schema.pdf

This detailed description of INDECS by Godfrey Rust and Mark Bide (MUZE, Inc.: EDItEUR, June 2000), identifies the principles on which it is based, the model itself, and the data dictionary.

"The <in*d*ecs> Model: Some Key Issues"
www.ukoln.ac.uk/dlis/models/models10/gr-mod10.ppt

This PowerPoint presentation by Godfrey Rust (1999) serves as a nice graphical reference on how the <in*d*ecs> model works.

CRM (Conceptual Reference Model)

The CIDOC CRM Reference Model
http://cidoc.ics.forth.gr/
www.bnf.fr/pages/version_anglaise/normes/no-acCRM_gb.htm
http://cidoc.ics.forth.gr/technical_papers.html

This is the home page for the CIDOC CRM (Conceptual Reference Model); see especially the technical papers (http://cidoc.ics.forth.gr/technical_papers.html) Web page.

"Is That a Reference Model in Your Pocket . . . ? The CIDOC CRM & IFLA FRBR"
www.rlg.org/en/pdfs/2003metadata/gill.pdf

This online document by Tony Gill outlines the CRM in relation to the FRBR model (presented at Ready to Wear: Metadata Standards to Suit Your Project: An RLG-CIMI Forum, May 12–13, 2003).

"Metadata and the CIDOC CRM: A Solution for Semantic Interoperability"
www.chin.gc.ca/Resources/Cidoc/French/Presentations/mdoerr.html (online document)
www.chin.gc.ca/Resources/Cidoc/French/Presentations/mdoerr.ppt (PowerPoint file)

The URLs above provide access to a brief online paper (in English) and PowerPoint presentation (presented on August 25, 2000, CIDOC 2002, Ottawa, Ontario, Canada) about metadata and the CIDOC DRM. Authors listed include: Martin Doerr, ICS-Forth, Crete, Greece; Nicholas Crofts, University of Switzerland, Geneva; and Maria Theodoridou, ICS-Forth, Crete, Greece 2000.

"When the Rubber Hits the Road . . . Using the CIDOC CRM in the Real World"
http://cidoc.ics.forth.gr/docs/symposium_presentations/gill_2003-when-rubber_hits_road.ppt

This highly graphical PowerPoint presentation of the CRM by Tony Gill (presented at Sharing the Knowledge: International CIDOC CRM Symposium, Washington, DC, Marcy 27, 2003) outlines its application in the real world of cultural digital objects.

"The Book, the Bug, and the Bangle: A Parallel and a Paradox"
http://cidoc.ics.forth.gr/docs/symposium_presentations/leboeuf_bookbugbangle_revised.doc (paper)
http://cidoc.ics.forth.gr/docs/symposium_presentations/leboeuf_slides.ppt (PowerPoint file)

This paper (Microsoft Word document) by Patrick Le Bœuf (Bibliothèque nationale de France) and accompanying PowerPoint presentation was presented at Washington, International CRM Symposium, "Sharing the Knowledge" (Washington, DC, March 26–27, 2003) and provides a description of the issues involved in trying to map the CIDOC CRM to the FRBR model.

"Touring the RLG Information Landscape: The CIDOC Conceptual Reference Model"
www.rlg.org/legacy/r-focus/i45tour.html

This article appearing in the August 2000 issue of *RLG Focus* (a bi-monthly newsletter published by RLG) by Tony Gill provides a short introduction and explanation of the CIDOC CRM.[7]

"Third Meeting on FRBR/CRM Harmonization"
http://cidoc.ics.forth.gr/docs/3rd_FRBR_CRMHarmon.doc

The URL above provides access to Patrick Le Bœuf's most up-to-date information regarding the integration of CRM with FRBR. Links to earlier versions of Le Bœuf's work on this subject include:

- "Mapping CRM to FRBR" (2003)
  http://cidoc.ics.forth.gr/docs/mapping_crm_frbr.doc
  http://cidoc.ics.forth.gr/docs/mapping_crm_frbr.pdf
- "Mapping FRBR to CRM" (2002) http://cidoc.ics.forth.gr/docs/mapping_frbr-crm_revised.doc
  http://cidoc.ics.forth.gr/docs/mapping_frbr-crm_revised.pdf

The U.K. Office for Library and Information Networking (UKLON) Analytical Model of Collections

"An Analytical Model of Collections and Their Catalogues"
www.ukoln.ac.uk/metadata/rslp/model/amcc-v31.pdf

This study (third issue, revised, Oxford, January 14, 2000) carried out by Michael Heaney (University of Library Services Directorate, University of Oxford) examines the collection model based on FRBR, RDF, and XML.

"RSLP (Research Support Libraries Program) Collection Description"
www.dlib.org/dlib/september00/powell/09powell.html

This September 2000 article in *D-Lib Magazine* by Andy Powell, Michael Heaney, and Lorcan Dempsey provides a detailed description of the RSLP project and includes a collection description schema and collection types.[8]

"RSLP Collection Description Schema"
www.ukoln.ac.uk/metadata/rslp/schema

This document (May 2000) by Andy Powell (UKLON, University of Bath) graphically illustrates the RSLP schema architecture and features attribute descriptions and semantics.

"RSLP Collection Description Tool"
www.ukoln.ac.uk/metadata/rslp/tool

This document (2000) by Andy Powell provides a prototype template for ingest of information. Guidelines ("RSLP Collection Description: Data Entry Guidelines [draft]") for filling in the RSLP template are available at www.ukoln.ac.uk/metadata/rslp/tool/?mode=printGuide.

"Users and Information Resources: An Extension of the Analytical Model of Collections and Their Catalogues into Usage and Transactions"
www.ukoln.ac.uk/cd-focus/model-ext/CD2-principles-v2-2.pdf

This document (second issue, revised November 2005) by Michael Heaney provides an up-to-date and detailed description of the RSLP architecture.

Variations2 Model

Variations2: Indiana University Digital Music Library Project
www.dml.indiana.edu/papers.html

This Web site provides access to a large number of papers and presentations composed by Variations2 staff.

"Variations2: The Indiana University Digital Music Library Project"
http://variations2.indiana.edu/html/dunn-notess-dlf2002/dunn-notess-dlf2002_frame.htm

This online document features a presentation by Jon W. Dunn and Mark Notess (both from the Indiana University Digital Library Program) that was presented at the Digital Library Federation Fall Forum (Seattle, Washington, November 4–6, 2002); it specifically discusses the FRBR model influence on the Variations2 architecture and outlines specific solutions for enhancing the FRBR model for this particular project.

"A Digital Library Data Model for Music"
http://variations2.indiana.edu/pdf/minibayeva-dunn-jcdl2002.pdf
http://variations2.indiana.edu/html/minibayeva-dunn-jcdl2002/minibayeva-dunn-jcdl2002_frame.htm

These online documents by Natalia Minibayeva (Indiana University School of Library and Information Science) and Jon W. Dunn (from the Proceedings of the Second ACM/IEEE-CS Joint Conference on Digital Libraries, Portland, Oregon, July 13–17, 2002) provide yet another detailed examination of the FRBR model related to the Variations2 project.

"Variations2: Improving Music Findability in a Digital Library through Work-Centric Metadata: Abstract"
www.dml.indiana.edu/pdf/p084-notess.pdf
http://csdl2.computer.org/comp/proceedings/jcdl/2004/2493/00/24930422.pdf

The abstract of a paper (and accompanying presentation) by Mark Notess and Jon W. Dunn on the FRBR influence in the Variations2 project (from the Proceedings of the 4th ACM/IEEE-CS Joint Conference on Digital Libraries, Tucson, Arizona, 2004).

ISAD(G) and Archives

"Could This be the Beginning of a Beautiful Friendship: A Comparison of the Description and Access to the Object of Interest between the Libraries and Archives"
www.ifla.org/IV/ifla66/papers/125-164e.htm

This examination by Eeva Murtomaa (Helsinki University Library) of how the FRBR model and the General International Standard Archival Description (ISAD[G]) might assist in the collaboration and cooperation between libraries and archives (from the Proceedings of the 66th IFLA Council and General Conference, Jerusalem, Israel, August 13–18, 2000).

"Future Scenarios for Archives: Some Italian Perspectives"
http://archivi.beniculturali.it/INTRANET/estero/Villalante.pdf

This in-depth look at the ISAD(G) in relation to the FRBR model, with some excellent graphics, was presented by Maurizio Savoja (Archivo di Stato di Milano) at the Convergence on Memory Institutions: Finnish-Italian Seminar on the Collaboration of Libraries, Archives, and Museums in the Organization of Knowledge (Villa Lante, Rome, November 14–16, 2002).

DAMS Data Model

"Digital Assets Management System (DAMS) Data Model"
www.lib.utexas.edu/dams
www.lib.utexas.edu/dams/development/metadata/data_model.html

The two URLs listed above provide access to the Web portal of the Digital Assets Management System (DAMS) for the Digital Library Services Division at the University of Texas at Austin Libraries. The DAMS digital architecture incorporates a FRBR model.

XOBIS

"Introducing XOBIS to the FRBR Working Group (2003)"
http://elane.stanford.edu/laneauth/IFLA_Berlin.html

This document by Dick R. Miller provides an introductory presentation on XOBIS, an XML schema that falls somewhere between the complexity of MARC and the simplicity of Dublin Core. XOBIS incorporates a number of the attributes and relationships of the FRBR model.

"XOBIS — An Experimental Schema for Unifying Bibliographic and Authority Records"
http://elane.stanford.edu/laneauth/XOBIS_CCQ/XOBIS_CCQ.html

This chapter by Dick R. Miller appears in the book *Functional Requirements for Bibliographic Records (FRBR): Hype, or Cure-All?*.[9] (The above URL provides access to the preprinted version of the content.) The work is an extensive discussion of the XOBIS schema and of the FRBR influence on its design; it also features excellent graphs of the architecture model.

Notes

1. Ramsay Clark, "Quotation #1585 from Laura Moncur's Motivational Quotations," The Quotations Page, http://quotationspage.com/quote/1585.html (accessed September 19, 2006).
2. Martin Doerr, Jane Hunter, and Carl Lagoze, "Towards a Core Ontology for Information Integration," *Journal of Digital Information* 4, no. 1 (April 9, 2003), http://jodi.tamu.edu/Articles/v04/i01/Doerr (accessed September 19, 2006).
3. Jane Hunter, "MetaNet: Metadata Term Thesaurus to Enable Semantic Interoperability between Metadata Domains," *Journal of Digital Information* 1, no. 8 (February 8, 2001), http://jodi.tamu.edu/Articles/v01/i08/Hunter (accessed September 19, 2006).
4. Carl Lagoze and Jane Hunter, "The ABC Ontology and Model," *Journal of Digital Information* 2, no. 2 (November 6, 2001), http://jodi.ecs.soton.ac.uk/Articles/v02/i02/Lagoze (accessed September 19, 2006).
5. Carl Lagoze, Jane Hunter, and Dan Brickley, "An Event-Aware Model for Metadata Interoperability" (paper produced from ABC Workshop, January 2000), www.cs.cornell.edu/lagoze/papers/ev.pdf (accessed September 19, 2006).
6. David Bearman et al, ""A Common Model to Support Interoperable Metadata," *D-Lib Magazine* 5, no. 1 (January 1999), www.dlib.org/dlib/january99/bearman/01bearman.html (accessed September 19, 2006).
7. Tony Gill, "Touring the RLG Information Landscape: The CIDOC Conceptual Reference Model," *RLG Focus* 45 (August 2000), www.rlg.org/legacy/r-focus/i45tour.html (accessed September 19, 2006).
8. Andy Powell, Michael Heaney, and Lorcan Dempsey, "RSLP (Research Support Libraries) Collection Description," *D-Lib Magazine* 6, no. 9 (September 2000), www.dlib.org/dlib/september00/powell/09powell.html (accessed September 19, 2006).
9. Patrick Le Bœuf, ed., *Functional Requirements for Bibliographic Records (FRBR): Hype, or Cure-All?* (Binghamton: Haworth Press, 2005). Also appeared as an article in *Cataloging & Classification Quarterly* 39, no. 3–4, www.cataloging andclassificationquarterly.com/ccq39nr3-4.html (accessed September 13, 2006).