

FRBR, Facets, and Moving Images: A Literature Review

July 31, 2010 version

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Compiled for the OLAC Discussion Group on

Developing a Work-Centric, Faceted Interface for Moving Images

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Projects with Centralized Access to Moving Images

Asian Educational Media Service Database. Center for East Asian and Pacific Studies at the University of Illinois at Urbana-Champaign.

<http://www.aems.uiuc.edu/aemsdatabase/index.html>.

The AEMS Database contains records for DVDs, videocassettes, curriculum units with audio-visual components, and other non-print media helpful for teaching and learning about Asia. Each record includes a detailed description of the item and information on how to obtain the item from its distributor.

Similarities: The focus is on identification and description of audiovisual materials.

Differences: Focus is on Manifestation/Item level and the provision of access is limited to pointing the searcher toward a commercial distributor. The interface does not offer faceted browsing or FRBR-ized navigation and display.

“Audiovisual Archive Network (AVAN).” <http://www.archivenetwork.org/home>.

This project provides two primary services to facilitate access and preservation of digital files: 1. An aggregated Library with archival time-based content; and, 2. a digital repository to preserve digital files for archives and creators lacking infrastructure to manage digital preservation efforts themselves.

Similarities: Focused on access and description.

Differences: The project is specifically concerned with providing clip-level access to digitized sound and moving image materials, and serve as a repository for digital masters.

Ball State University Libraries Media Finders - Video (DVD and VHS).

<http://www.bsu.edu/library/librarycatalogs/mediafinders/>.

Ball State’s Media Finders were developed to improve access to its large, unclassified collections of media materials, which are stored in closed stacks and only findable via the library catalog. The Media Finders are Web forms that provide relevant guided search options, such as genre, release date, or country of origin.

Similarities: Focused on improving access and browsability.

Differences: This is a local project and does not utilize the FRBR model. Although the options provided are essentially facets, the Media Finders fall short of being a true faceted interface because options must be preselected, the act of selecting an option does not interact with the result set in real-time, and zero hit result sets are possible.

CEN (European Committee for Standardization) Metadata Standardization for Cinematographic Works. <http://www.filmstandards.org>

CEN.BT TC 372 is the working group preparing a metadata specification for the identification and description of cinematographic works. The first part of the specification has been published as European Standard EN 15744 http://www.filmstandards.org/dokuwiki/lib/exe/fetch.php?id=start&cache=cache&media=cen-tc372_n0167_4th_wd_csh00102-r3_2008-12-03.pdf and the second part, a specification for structuring machine-processable metadata about cinematographic works, is currently undergoing formal review as prEN 15907.

Similarities: The CEN.BT TC 372 adopted the FRBR model and a similar approach to the concept of a Work by combining the aspects of the process of realization that result in characteristics intended to persist in subsequent expressions (or variants) of the work.

Differences: Focus is on the development of a metadata element set and extended schema for cinematographic works.

Civil Rights Digital Library. <http://crdl.usg.edu/?Welcome&Welcome>.

The Civil Rights Digital Library provides access to primary sources and other educational materials from libraries, archives, museums, public broadcasters, among others, including moving images. The Library site includes: “1) a digital video archive of historical news film allowing learners to be nearly eyewitnesses to key events of the Civil Rights Movement, 2) a civil rights portal providing a seamless virtual library on the Movement by connecting related digital collections on a national scale, and 3) a learning objects component delivering secondary Web-based resources - such as contextual stories, encyclopedia articles, lesson plans, and activities--to facilitate the use of the video content in the learning process.”

Similarities: Concerned with description and access to moving image materials.

Differences: Focused on the provision of access to digital content of a very specific nature. No use of FRBR or faceted searching; some filters for searching by category.

COLLATE - Collaboratory for Annotation, Indexing and Retrieval of Digitized Historical Archive Material. <http://www.collate.de/>

COLLATE was an EU funded project (2000-2003) to create working collaboratories in where archives, researchers and end-users could collaborate with digitized historic or archival material. The project resulted in a web-based collaboratory and a digital collection of moving image related materials on European film.

Similarities: Highly concerned with moving image user needs.

Differences: Neither FRBR, facets, nor MARC were included.

ECHO: European CHronicles Online. <http://pc-erato2.iei.pi.cnr.it/echo/documents/>

ECHO was a three year project (2000-2003) to develop a digital library service for historical films belonging to large national audiovisual archives in Europe. The system was to provide web-based access to the collections.

Similarities: The ECHO project was concerned with description and access of audiovisual materials. The project's audio/video metadata model adopted the FRBR model in its development of a long-term, reusable infrastructure and metadata model for audiovisual materials.

Differences: The ECHO project focused on the development of web-based, interoperable audiovisual digital libraries. The ECHO audio/video metadata model extended the FRBR model to accommodate the descriptive needs of audiovisual materials, and more specifically, the access needs of historical documentary films. To extend the FRBR model, new sub entities--AVDocument, Version, Media and Storage—were added to each of the FRBR entities, respectively.

EFG - The European Film Gateway. <http://www.europeanfilmgateway.eu/>.

The European Film Gateway (EFG) project is a three-year project to create an online portal for direct access to digital objects including films, photos, posters, drawings, sound material and text documents.

Similarities: The project emphasizes access and description, and will enable users to search and retrieve different media through the common interface of Europeana, a European Commission-funded portal. The EFG data model is primarily based upon the concept of Cinematographic Work as defined in the EN 15907 reference model, but also utilized the FRBR concepts (Work / Expression) and the concept of WPE (Work / Primary Expression) as defined by the OLAC/CAPC Task Force. The EFG data model basically distinguishes between three levels: Creation, Manifestation and Item. The Europeana portal provides faceted browsing.

Differences: The focus is on providing access to digitized content. The Europeana portal does not use FRBR-based display and navigation.

FIAF (International Federation of Film Archives) rules revision project.

<http://www.filmstandards.org/fiaf/wiki/doku.php>

FIAF is revising its rules for cataloging archival moving images and will follow the general FRBR structure while taking into account aspects of RDA (2008), Yee's *Cataloging Rules* (2008), the CEN TC 372 publications and the OLAC/CAPC Task Force publications. In this way, the Working Group hopes to craft a standard that benefits from and harmonizes with these works.

Similarities: Concerned with description and access to moving images. Use of FRBR model as conceptual framework.

Differences: This an effort to craft an updated cataloging manual for European film archives.

Flamenco Search Interface Project <http://flamenco.berkeley.edu/pubs.html>

Faceted metadata searching project, current as of 2009, funded by a grant from the National Science Foundation to Marti Hearst, UC Berkeley.

Similarities: Uses facets.

Differences: Emphasis seems to be on the technology and algorithms necessary for information retrieval using facets.

Lifesign. <http://www.lifesign.ac.uk>.

“The Lifesign project aimed to evaluate the use of networked moving images in teaching and learning, with a subject focus on the Life Sciences. Its key outputs have been:

- The streaming of some 62 rights cleared videos available to HEIs via the project website
- The creation of associated metadata for these resources
- The development of software facilities for users to customise and embed video segments into other learning environments
- Evaluation reports and case studies
- User support resources to guide those wishing to adopt streaming in the curriculum
- A feasibility study on adapting library reading list management software for handling video metadata

Lifesign was a multi-faceted project which involved collaboration across several areas of professional expertise.”

Similarities: Focused on developing appropriate ways of describing resources and providing access points for users.

Differences: Emphasis on collaboration with educators to provide a relevant collection of resources for learning and teaching in the Life Sciences.

MOVIECLIPS.com. <http://movieclips.com/#/page/1/search/>

MOVIECLIPS.com provides scene-level access to over 12,000 movie clips licensed six major Hollywood studios including 20th Century Fox, Metro-Goldwyn-Mayer Studios Inc., Paramount, Sony Pictures Entertainment, Universal and Warner Bros. The clips are searchable by actor, title, genre, occasion, action, mood, character, theme, setting, prop, and dialogue. Users can rent or purchase films from retailers or share clips on social networking sites like Twitter or Facebook.

Similarities: Focused on granular access and description of moving image material. Uses faceted searching.

Differences: Limited to clips of feature films with an emphasis on promoting commercial access to products. The display and navigation of the catalog do not reflect the FRBR model.

Moving Image Collections. <http://mic.loc.gov/>.

MIC provides a union catalog of moving image titles from participating archives and a directory with information about specific archives.

Similarities: The catalog provides the ability to map MARC and other metadata to its own data scheme. The focus is primarily on access and description.

Differences: The MIC Union Catalog does not employ FRBR-ized navigation and display, and its records represent manifestations/items of archival moving images. MIC is concerned with providing archival-specific information, such as preservation and copyright data, and fostering relationships with educators.

Similarities: Deals with how FRBR can effect the user's tasks.

Differences: Doesn't really deal with facets or requirements for interface. More focused on the metadata itself.

MIDAS (Moving Image Database for Access and Re-use of European Film Collections).
<http://www.midas-film.org/>

A pilot project in the MEDIA Plus programme of the European Commission, ran from January 2006 until January 2009 and was carried out by 18 institutions and archives under the lead of the Deutsches Filminstitut. It is the project behind *filmarchives online* [<http://www.filmarchives-online.eu/>], an online catalog with information on the film holdings in several European film archives.

Similarities: *filmarchives online* provides access and description of physical and some digital moving image material. The catalog data is independently updated or enhanced by participating institutions.

Differences: The focus of the database is on non-fiction archival moving image material, (i.e., unique materials). The catalog's display and navigation is not FRBR-based.

MusicBrainz. <http://musicbrainz.org/>

MusicBrainz is a user-maintained relational database of music metadata which aims to be the "Wikipedia of music." Data is collected on artists, release groups, releases, tracks, and labels. MusicBrainz depends on users "to spot mistakes in the database and then to take the initiative to correct these errors." To maintain quality, style guidelines have been developed. With an account, a personal music collection may be created and the database is downloadable for personal use.

Similarities: Provides a FRBR-like collocated display of artist albums, singles, compilations, mixes, etc. and allows FRBR-like grouping of an artist's work by role

(performer, producer, lyricist, composer, etc.). The task of obtaining a musical item is facilitated by links to outside sources.

Differences: The database is user-maintained; development is not reliant on import and conversion of records. Database can show artistic relationships (e.g., an artist's collaborations, a band's membership). Facets are not provided for limiting of search results. Subject access is limited to user-supplied tags.

National Film and Sound Archive. <http://www.nfsa.gov.au/>.

The National Film and Sound Archive (NFSA) is Australia's national audiovisual archive. NFSA collects, stores, preserves and makes available screen and sound material relevant to Australia's culture. The Search the Collection database offers online access to information in the NFSA's collection management database.

Similarities: Provides description and access to audiovisual materials. The interface provides faceted searching.

Differences: The records combine work-level and item-level information. Access is limited to materials in NFSA's holdings. The catalog's display and navigation is not FRBR-based.

Northeast Historic Film. <http://www.movingimagesincontext.org/>.

Northeast Historic Film (NHF) collects, preserves, and makes available to the public, film and videotape relating to the history and culture of northern New England. The Collections Database provides online access to collection-level information for many of Northeast Historic Film's moving image collections. NHF's *Finding and Using Moving Images in Context* is a prototype interface currently providing access to two collections.

Similarities: Provides description and access to audiovisual materials.

Differences: Description of materials is limited to collection-level and specific to NHF's holdings. No faceted searching or FRBR modeling.

Open Vault <http://openvault.wgbh.org/>.

Open Vault is "the home of WGBH Media Library and Archives" and provides "online access to unique and historically important content produced by the public television and radio station WGBH. The ever-expanding site contains video, audio, images, searchable transcripts, and resource management tools, all of which are available for individual and classroom learning."

Similarities: The browsable series and collection lists include facets that narrow results by topic, people, place, date, media, and series.

Differences: Does not use a FRBR-ized display. A category search limits to one or more subjects. An image-based gallery display supplements the list view. A relationship map visually connects the people, places, or topics named in the records. The archive includes transcripts and video. With a user account, annotations and tags may be added to records.

Open Video Project. <http://www.open-video.org/>.

A continuing project to collect and provide access to an open source repository of digitized video content for the digital video, multimedia retrieval, digital library, and other research communities. The project began in 1998 and currently contains video and metadata for over 4000 digitized video segments. The project products include an open source digital video library toolkit <http://www.open-video-toolkit.org/>, which will enable an organization to catalog and make available their digital video resources in their own Web-based digital library. The toolkit is intended to foster the development of individualized digital libraries.

Similarities: The project provides a repository for moving images, with some simplified faceted search options. The project is concerned with access and description. Includes support for faceted access.

Differences: Focus is on building an open source digital video test bed for digital library research and development, and providing detailed access to digital video. The repository is not collaboratively maintained and the interface does not employ FRBR-based display and navigation.

River Campus Libraries, University of Rochester - Find DVDs and Videos.
<http://www.lib.rochester.edu/index.cfm?page=553>

An example of a specialized catalog search tool providing director, genre, and language browse functions (through drop-down menus) and format limits.

Similarities: Search video independently of rest of collection. Exploits existing information in MARC records.

Differences: Not a stand-alone database. No FRBR-like display of results.

SMDB, the Swedish Media Database. <http://smdb.kb.se/>

A web-accessible catalog system for audiovisual materials based on a simplified and practical FRBR-based approach. It is also compatible with the MARC21 format. The system separately catalogs content and carrier, allowing them to be linked in various ways to describe new editions, digital copies, etc., and facilitates the collocation of different editions. The system handles the problems of linking and usefully displaying information about parts of boxed sets and series and parts of manifestations.

Similarities: Focused on description and access. Implementation of FRBR uses a two-level approach. FRBRized display of results, showing relationships between the levels.

Differences: Their two-level approach most approximates the FRBR expression level at the top and a lower, primarily, manifestation/ item level. Our top level Work/Primary Expression records will include data about the Work as well as data about a Primary Expression. Our lower level includes information from the manifestation level and from the expression level for the item-in-hand. Our shared database will link to library holdings of local institutions.

Time-based Media Application Profile to Support Search & Discovery (TBM-AP).

<http://wiki.manchester.ac.uk/tbmap/>

This project is creating a Dublin Core application profile (DCAP) for time-based media (sound, moving image, and associated materials) for use in higher education. Their model is based on the FRBR model

(<http://wiki.manchester.ac.uk/tbmap/index.php/ModelOverview>) and follows “the e-prints or SWAP model for bibliographic material”

(http://www.ukoln.ac.uk/repositories/digirep/index/Eprints_Application_Profile). They cover both digital and physical media, with an emphasis on a lightweight approach, search and discovery, and the means of accessing the material.

Similarities: Concerned with access to and discovery of moving images. Use of FRBR model.

Differences: Focus is building a Dublin Core application profile. The model for the TBM DCAP follows SWAP and also adopts a subset of the FRBR model, using all four Group 1 Entities.

UCLA Film and Television Archive. <http://www.cinema.ucla.edu/>

The UCLA Film and Television Archive constitutes one of the largest collections of media materials in the United States, including motion picture and television titles, and newsreel footage. The UCLA Library Catalog provides online access to MARC records of items in the archives’ holdings.

Similarities: Concerned with access to and discovery of moving images.

Differences: The catalog does not provide faceted searching or FRBR-based display and navigation. The database records are MARC records. Access to materials is limited to those at UCLA.

WorldCat Genres. <http://www.worldcat.org/genres/>

A joint experiment of OCLC Research and WorldCat.org, WorldCat Genres offers browsing by genre headings, including those related to film and television. For each heading, the user can retrieve lists of titles, authors, subjects, characters, locations, and more, ranked by popularity in the world's libraries.

Similarities: Allows faceted navigation of information in moving image records. A FRBR-inspired display is provided for listed authors (by linking to WorldCat Identities).

Differences: WorldCat Genres is not limited to moving image materials. It does not seek to apply FRBR to moving image works. WorldCat Genres aims to facilitate access to popular moving image and other materials by providing a single entry point (genre) and a choice of secondary headings.

Articles on Projects with Centralized Access to Moving Images

Agnew, Grace, Dan Kniesner, and Mary Beth Weber. "Integrating Mpeg-7 into the Moving Image Collections Portal." *J. Am. Soc. Inf. Sci. Technol.* 58, no. 9 (2007): 1357-1363. <http://portal.acm.org/citation.cfm?id=1324091> [requires subscription].

The MIC catalog utility utilizes a core registry designed to map to any metadata schema used to describe moving images. The authors developed and tested support for MPEG-7 ("one of the few metadata schemas developed specifically to describe, manage, and provide access to moving images") by cataloging, mapping, and ingesting 400 science digital videos from the Research Channel. Issues with MPEG-7 as a descriptive metadata schema, as well as mapping and implementation issues, are discussed.

Amato, Giuseppe, Donatella Castelli, Serena Pisani, Paola Venerosi, Philippe Poncin, and Laurent Vinet. "Metadata Modelling Report," September 15, 2000. <http://www.nmis.isti.cnr.it/echo/public/deliv/D3-1-1%20ECHO%20Metadata%20Modelling.pdf>

Documents and presents the IFLA-influenced metadata model of the ECHO project. The IFLA model "satisfies our need for a more complete conceptual descriptive framework. Moreover, by the analysis conducted on the returned questionnaires, it is clear that the conceptualisation proposed by the IFLA model is closed [sic] to that currently used by some of the ECHO data and technology providers. This was a good indication that by extending appropriately this model we could have been able to derive a new model suitable for supporting the ECHO functionality" (p. 4).

Amato, Giuseppe, Claudio Gennaro, and Pascal Savino. "Searching Documentary Films on Line: The Echo Digital Library." In *Proceedings of the 6th ICHIM Conference*, 2:147-155. Vol. 2. Milan, Italy: Archives & Museum Informatics, 2001. http://www.archimuse.com/publishing/ichim01_vol2/gennaro.pdf.

Provides an overview of the ECHO project. The project "aims at developing a Digital Library (DL) service for historical films belonging to large audiovisual archives" (p. 147). "The project provides content-based searching and film sequence retrieval. As the content is conveyed in both narrative (text and speech) and the image, a collaborative interaction of image, speech and language technology will be adopted in order to search the diverse film collections with satisfactory effectiveness" (p. 150).

Debole, Franca, Pasquale Savino, and Detlev Balzer. "Common Interoperability Schema for Archival Resources and Filmographic Descriptions: Report on the Common Interoperability Schema." European Film Gateway, September 4, 2009. http://www.europeanfilmgateway.eu/downloads/D22_Common_Interoperability_Schema_final_090904.pdf.

From the introduction: “This deliverable describes the common interoperability schema developed for EFG. The schema allows to consolidate the data held in the various heterogeneous source databases of the EFG content providers in a common format. A first draft outline of the schema had been established in the beginning of March 2009. Since then it has been refined in a series of meetings and telephone conferences. Mainly involved in the establishment of the finalised version were Consiglio Nazionale delle Ricerche – Istituto di Scienza e Tecnologie dell’Informazione (CNR-ISTI), Deutsches Filminstitut – DIF (DIF), Istituto Luce (IL) and Europeana (EDL). An advanced draft version has been presented to the project partners during the WG 3 workshop carried out in Copenhagen from 11 to 13 May 2009. On the basis of the discussion held in Copenhagen the data model has then been finalised. It will be circulated to all content providers before the end of June 2009. As defined in the DOW (M2.9 ‘Evaluation and approval of EFG interoperability by EDL’), evaluation and approval of the existing EFG metadata schema by the Europeana interoperability staff is expected until beginning of July. Part of the metadata schema described in this deliverable is an XML expression of the same, which is currently being developed. Following the work on the EFG metadata schema, the mapping from the EFG to the Europeana format ESE1 will be carried out shortly.”

Eckes, Georg, and Monika Segbert. “European Film Gateway: A Portal for Film Archives.” *Ariadne*, no. 58 (January 2009). <http://www.ariadne.ac.uk/issue58/eckes-segbert/>.

Describes development of the EFG gateway. Among developments underway: “a common EFG interoperability schema” that is “due to be completed by May 2009. This will be followed by the setting up and implementation of transformation filters for the individual participating archives, and thereafter, by the ingestion of metadata into the EFG system. A public beta version of the EFG portal is planned for mid-2010, followed by a period of system refinement and integration of additional collections lasting until August 2011.”

Garrison, William. “Lifesign: Making Popular Television Work for Online Learning.” *He@lth Information on the Internet* (February 2005): 6-7.
<http://hii.rsmjournals.com/cgi/reprint/43/1/6.pdf>.

Begun in 1999, “Lifesign <www.lifesign.ac.uk> is an innovative service offering students and teachers in life science and biomedical science immediate access to relevant video programmes.” Lifesign is designed to “allows users to locate relevant scenes from within a programme and provides tools with which the lecturer or tutor can create custom Web pages and playlists. Users can identify relevant segments, group such segments in playlists, create custom Web pages, and then publish those pages and playlists online where they are easily accessible to students. Tools on the Lifesign site allow the users to link relevant segments with their own Web-based content” (p. 6).

Geisler, Gary, and Gary Marchionini. “The Open Video Project: A Research-Oriented Digital Video Repository,” 2000. ScientificCommons.
http://www.ischool.utexas.edu/~geisler/info/dl00-open_video.pdf.

Provides a short summary of the Open Video Project. In development: “a user interface framework called AgileViews, which attempts to improve information seeking through the use of alternative views. The video repository is expected to provide a rich source of content with which we can experiment with providing the overviews, previews, peripheral, and shared views that we believe will help a diverse range of users effectively access video content.”

Geisler, Gary, Gary Marchionini, Michael Nelson, Richard Spinks, and Meng Yang. “Interface Concepts for the Open Video Project.” *Proceedings of the ASIST Annual Meeting* 38 (2001): 58-75. http://www.ischool.utexas.edu/~geisler/info/asist01_geisler.pdf.

An interface for better browse and retrieval is one of the goals of the Open Video Project. “We believe it is especially crucial to provide users with maximum information to inform relevance judgments before accepting the time costs of downloading video. Thus, in addition to the retrieval task, we aim to help people understand a video collection’s structure, what is and is not available, and what attributes might be useful for retrieval purposes. We are also providing people with a range of surrogates and integrating these surrogates into an effective and efficient interface.”

Hearst, Marti A. “Emerging Trends in Search Interfaces: Multimedia Search Interfaces.” In *Search User Interfaces*. http://searchuserinterfaces.com/book/sui_ch12_emerging.html#section_12.2.

This book section covers image, video, audio and multimedia search interfaces, providing an overview of the state of the art, and concludes that “it is highly likely that audio, video, and image search will take on an increasingly important role in the coming decade.”

Johansson, Olle. “Dealing with AV Media and Digital Files in the Swedish Media Database.” Milan, Italy: IFLA, 2009. <http://www.ifla.org/files/hq/papers/ifla75/180-johansson-en.pdf>.

From the abstract: “The paper describes how this system separately catalogues content and carrier, allowing them to be linked in various ways to describe new editions, digital copies, etc. It continues with examples of how various complex cases can be dealt with under this system, including

- different works published together (eg kits and boxed sets)
- different works on one carrier (eg short films transferred to video)
- part records (eg tracks on a CD)

Special attention is given to how metadata is created for technical formats and their characteristics.”

Johnson, Jane D. “Moving Image Collections: From Common Ground to Virtual Community: Building Strategic Alliances Across Disciplines and Institutions” presented at the

Museum Computer Network Annual Meeting, November 4, 2005.

http://www.mcn.edu/conference/Mcn2005/SessionPapers/CommonGroundVirtualCommunity_Johnson.pdf.

Johnson, the MIC Project Manager, provides an overview of the MIC project. The effort to promote standards while recognizing diversity is a theme. Describes MIC's core registry: 1) 48 data elements specific to moving images; 2) Mapping for ingest, export, display; 3) Rich mappings across multiple schema; and 4) Documented according to registry standard ISO 11179.

Marchionini, Gary, and Gary Geisler. "The Open Video Digital Library." *D-Lib Magazine* 8, no. 12 (12, 2002). <http://www.dlib.org/dlib/december02/marchionini/12marchionini.html>.

Provides a useful description of the OVDL search interface: "The browse interface presents access clusters by genres (documentaries, educational, lectures, ephemerals, historical), duration (less than a minute, 1-2 minutes, 2-5 minutes, 5-10 minutes, and more than 10 minutes), color (color or black and white), sound (with sound or silent), and contributing organization (e.g., CMU, Internet Archive, etc.). For each category, posting data is given for the number of segments in that category. This layout provides an overview of the entire collection as well as browse access. Browse facilities are available at all levels of the interface. The search interface supports three kinds of search. Attribute search provides pull-down menus or radio buttons for key attributes such as genre or producer. This offers a quick way to partition the database into videos with specific characteristics of interest. Two types of text-based search options are also available. An input field is provided for user-entered queries matched on the full text search of bibliographic records as well as transcripts for those videos with transcripts available. A pull-down menu of keywords that can be used as search criteria is also available."

Marchionini, Gary, Barbara M. Wildemuth, and Gary Geisler. "The Open Video Digital Library: A Möbius Strip of Research and Practice." *Journal of the American Society for Information Science and Technology* 57, no. 12 (2006): 1629-1643. <http://www3.interscience.wiley.com/journal/112752359/abstract?CRETRY=1&SRETRY=0> [subscription required].

Describes the interplay between research and practice in the development of the OVDL. Two theoretical frameworks for the project are described: "The first framework considers DLs to be such powerful extensions of traditional libraries that qualitative shifts in form and function arise and new properties emerge. This notion is manifested in the concept of sharium, a term meant to suggest that a DL is a forum for mutual sharing of intellectual resources. A sharium goes beyond providing information in a curated collection, to inviting active participation in the form of collaboration and contributions from all users and to providing flexible means for reusing information resources." "The second framework addresses how people interact with electronic information, and we have been developing and testing what we call the *AgileViews* approach to interface design. [...] People should be able effortlessly (i.e., with agility) to shift among different representations for information spaces and objects as they seek and use information."

McGrath, Kelley. "Media Finders -- Improving the Browsability of Media Collections via the OPAC - PB - Routledge." *Internet Reference Services Quarterly* 11, no. 3 (2006): 19. http://www.informaworld.com/10.1300/J136v11n03_02 [subscription required].

Abstract: "The Ball State University Libraries' collections of audiovisual materials are unclassified and kept in closed stacks. Users must search the OPAC to find these materials, which is difficult for users who don't know what sorts of searching options are available or what materials the libraries have. The libraries have developed a series of Web forms that provide guided search options for various types of media, including feature films, non-classical music, and spoken recordings. The Media Finders provide better exposure for and more convenient searching of subsets of library materials. This paper describes the development of the Media Finders, their benefits and drawbacks, and background information on the technical elements and searching strategies used by the Media Finders."

"Open Video Digital Library Toolkit." <http://www.open-video-toolkit.org/>.

The toolkit "will create and make available open source software tools that will enable organizations to create their own digital video libraries" and "provide museums, libraries and other institutions holding moving image collections with the tools to create Web-based digital video libraries."

Savino, Pascal. "Building an Audio-visual Digital Library of Historical Documentaries: the ECHO Project." *D-Lib Magazine* 6, no. 11 (November 2000). <http://www.dlib.org/dlib/november00/11inbrief.html>.

A short overview of the project and its prototypes: "The ECHO system prototypes will be based on two existing Audio/Video Digital Libraries systems: Informedia and Media Archive. The Informedia Digital Video Library was funded by the first NSF/ARPA/NASA Digital Library Initiative (DLI) from 1994-1998, and was the only DLI project focusing on full-content indexing and retrieval of audio and video material. Media Archive® is a content management system built with a client/server architecture. The Media Archive® client components form an integrated application suite supporting a continuous workflow in documentation, retrieval and reuse."

Slaughter, Laura, Gary Marchionini, Gary, and Gary Geisler. "Open Video: A Framework for a Test Collection." *Journal of Network and Computer Applications* 23 (2000): 219--245. <http://www.ischool.utexas.edu/~geisler/info/Jnca0112.pdf>.

Describes a proposed test collection for the Open Video Project. "There are many factors that need to be considered in order to maintain a test collection of video that will be both varied and specific enough to be practical. This list of factors includes: (1) genre, (2) time (both period and run length), (3) amount of motion, (4) colour or black/white, (5) sound or silent, (6) language, (7) raw footage or edited, (8) segmentation technique, (9) duration and (10) compression type. The test collection should be sufficiently large to provide

videos that satisfy various combinations of these factors. For example, we do not wish to design a test collection consisting entirely of MPEG-1, black/white news clips from the 1950s. Conversely, it is not desirable to build a collection that is too scattered. Not all combinations of factor values will be possible to represent and some may not be relevant to researchers at all” (p. 9).

Thiel, Ulrich, Holger Brocks, Ingo Frommholz, Andrea Dirsch-Weigand, Jürgen Keiper, Adelheit Stein, and Erich J. Neuhold. “COLLATE – A collaboratory supporting research on historic European films.” *International Journal on Digital Libraries* 4, no. 1 (2004): 8-12. <http://dx.doi.org/10.1007/s00799-003-0069-1> [subscription required].

Abstract: “In the COLLATE project, we aim to design and implement a Web-based collaboratory for archives, scientists, and end users working with digitized cultural material. Our example domain is the historic film documentation comprising digitized material about European films of the early 20th century. Designed as a content- and context-based knowledge working environment for distributed user groups, the COLLATE system supports both individual work and collaboration of domain experts who are analyzing, evaluating, indexing, and annotating material in the data repository. The system provides appropriate task-based interfaces for indexing and annotating. As a multifunctional means of in-depth analysis, annotations can be made individually but also collaboratively, for example in the form of annotation of annotations. Combining results from manual and automatic indexing procedures, elaborate content- and context-based information retrieval mechanisms can be applied.”

Information Seeking Needs of Users of Moving Images

Andreano, Kevin. "The Missing Link: Content Indexing, User-Created Metadata, and Improving Scholarly Access to Moving Image Archives." *The Moving Image* 7, no. 2 (Fall 2007): 82-99. http://muse.jhu.edu/journals/the_moving_image/summary/v007/7.2andreano.html [subscription required].

Andreano argues for the continued use of rigorous cataloging standards to provide scholarly subject access to moving image collections while also "accommodating diversity" by allowing for the possibility of user-created metadata.

Geisler, Gary, and Sam Burns. "Tagging Video: Conventions and Strategies of the YouTube Community." School of Information The University of Texas at Austin. <http://gremlin.ischool.utexas.edu/youtube/>.

A quantitative analysis of tags used by 537,246 contributors tagging more than one million videos on YouTube.

Hall, Audrey L. "A Study of Information Used by Public Library Patrons To Select Videocassettes." 1992. http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/13/b6/b4.pdf.

The author distributed a questionnaire to library patrons to determine what information on a videocassette container is used to make video selections. The most used information: performer, summary, and title. Also important but to a lesser degree: artwork, film rating, date of original production, color vs. black and white, original production date, and director or producer. Of minimal or least significance: artistic direction, playing time, series, closed captioning, original production company, sound, and distributor.

Harley, Diane, Jonathan Henke, Shannon Lawrence, Ian Miller, Irene Perciali, and David Nasatir. *Use and Users of Digital Resources: A Focus on Undergraduate Education in the Humanities and Social Sciences*. Center for Studies in Higher Education. University of California, Berkeley. <http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED503076>.

This study indicates that digital film and video are among the principal resources demanded by faculty users of digital resources for undergraduate education.

Hertzum, Morten. "Requests for Information from a Film Archive: A Case Study of Multimedia Retrieval." *Journal of Documentation* 59, no. 2 (2003): 168 - 186. <http://www.emeraldinsight.com/10.1108/00220410310463473> [subscription required].

Hertzum finds that users of a film archive made use of a broad range of film attributes when specifying their information needs. Attributes related to production, content,

subject, context and screening of films were sought. Title, production year, and director accounted for the majority of attributes identified.

Ho, Jeannette. "Faculty and Graduate Student Search Patterns and Perceptions of Videos in the Online Catalog." *Cataloging & Classification Quarterly* 33, no. 2 (July 2002): 69-88. <http://www.informaworld.com/smpp/content~db=all~content=a904778926> [subscription required].

This study seeks to understand the search habits of Texas A&M University faculty and graduate student users of the library catalog when searching for video titles. Among the conclusions: "it may be useful to at least include the following information as both access points and display elements: director, actor/actress, authors of original works the video was based on, language, original release dates, and original country of release. It may also be useful to at least include the following display elements: summary notes, video format, audience level, and length of video information as both access points and display elements: director, actor/actress, authors of original works the video was based on, language, original release dates, and original country of release."

Hume, Margaret. "Searching For Media In The Online Catalog: A Qualitative Study Of Media Users." *MC Journal: The Journal of Academic Media Librarianship* 3, no. 1 (Spring 1995): 1-28. <http://wings.buffalo.edu/publications/mcjrnl/v3n1/hume.html>.

Focus group interviews reveal that catalog searchers of media resources encounter "confusion over OPAC media holdings, a lack of awareness of media access points and searching features of the OPAC, and weaknesses in subject access to media." The author recommends both specialized user education and improved access to genre/form subject headings for film and music media materials.

de Jong, Annemieke, Johan Oomen, Pasquale Savino, and Paola Venerosi. "ECHO User Requirement Report," June 13, 2000. <http://www.nmis.isti.cnr.it/echo/documents/public/D1.2.1%20-%20User%20Requirement.pdf>.

The report collects user requirements for the ECHO system and was used both to validate existing functionality of the ECHO system and define areas where new functionality was needed. Functionality in the areas of search and retrieval, browsing, and metadata is addressed. Among the findings:

- provide for the opportunity of browsing through the database by theme or by class of object on the basis of manually added metadata
- provide for subject clustering of the search result
- provide for a personality view of the search result
- provide for a geographical view of the search result

Kirkegaard Lunn, Brian. "User Needs in Television Archive Access: Acquiring Knowledge Necessary for System Design." *Journal of Digital Information* 10, no 6 (2009).
<http://journals.tdl.org/jodi/article/view/685/0>

Abstract: "This paper presents a methodical approach for generating deep knowledge about users, as a prerequisite for design and construction of digital information access to cultural heritage information objects. We exemplify this methodical approach by reporting on an explorative study of information need characteristics in a television broadcast context. The methodical approach is inspired by naturalistic research, and our main data is nine in-depth interviews conducted with scholars and students within the academic field of Media Studies. The analysis identifies four characteristics. Firstly, broadcasts are needed as objects of analysis in empirical research. Secondly, the needs are related to three broadcast dimensions: 1) Transmission; 2) Archive; and 3) Reception. Thirdly, four fundamental types of information needs are verified in a television broadcast context: 1) Known item; 2) Factual data; 3) Known topic or content; and 4) Muddled topic or content. Fourthly, the interviewees' needs consist of four phases: 1) Getting an overview of transmitted broadcasts; 2) Identification of borderline exemplars; 3) Selection of specific programmes; and 4) Verification of facts. The present paper presents novel research on characteristics of information needs in a television broadcast context. We demonstrate how one may go about generating knowledge which is imperative for the design and construction of future broadcast retrieval systems."

Markkula, Marjo, and Eero Sormunen. "Video Needs at the Different Stages of Television Program Making Process." In *Proceedings of the 1st international conference on Information interaction in context*, 111-118. Copenhagen, Denmark: ACM, 2006.
<http://portal.acm.org/citation.cfm?id=1164844> [requires subscription].

Use of a video archive by journalists engaged in television program making reveals an "intense and unfocused searching of the archive" at the planning stage, and more focused needs towards the end of the work process.

Yang, Meng, and Gary Marchionini. "Exploring Users' Video Relevance Criteria ---- a Pilot Study." *Proceedings of the Annual Meeting of the American Society of Information Science and Technology*, no. 2004. http://www.open-video.org/papers/MengYang_ASIST040517.pdf.

The authors interviewed four experienced video searchers and found topicality to be the most important criteria used in making video relevance judgments. Participants also expressed interest in searching or browsing within videos by topics in their fields.

Yee, Martha M., and Raymond Soto. "User Problems with Access to Fictional Characters and Personal Names in Online Public Access Catalogs." *Information Technology and Libraries* 10, no. 1 (1991): 3-13. <http://escholarship.org/uc/item/30g6z446>.

From the discussion section: "The authors' findings indicate that users are probably having difficulty choosing the correct index or type of search in systems that require such

a choice. Currently, catalogers divide indexed terms in cataloging records into three broad categories generally referred to as titles, subjects, and authors. Online catalog designers create indexes based on these categories, usually requiring users to specify an index in a search. Unfortunately, there are types of headings that do not fall neatly into one of these broad groups. Fictitious characters are just one example of such headings. It is likely that a user looking for one of these types of entities (e.g., a fictitious character) will have difficulty deciding which type of index to pick.”

Zhang, Yin, Judy Jeng, and Yuelin Li. “IFLA FRBR as User-Centered Metadata Evaluation Framework for Moving Image Collections.” In *Proceedings of the 67th Annual Meeting of the American Society for Information Science and Technology*. Providence, R.I., 2004. http://comminfo.rutgers.edu/~miceval/progress/asist04_poster.doc.

The authors examine how metadata fields in the Moving Image Collection are used to complete the four FRBR generic tasks (find, identify, select, obtain). Users perceived content descriptions (e.g. subject, title, summary notes, content notes, genre) to be useful when finding and identifying resources. Users perceived physical descriptions (e.g. access restrictions, type, date, physical characteristics, duration) to be important for selecting and obtaining resources. However, users relied more on content descriptive metadata than physical descriptive metadata for both identification and selection of moving images. [This document is in an unfinished, draft state.]

Zhang, Yin, and Yuelin Li. “A User-Centered Functional Metadata Evaluation of Moving Image Collections.” *Journal of the American Society for Information Science and Technology* 59, no. 8 (2008): 1331-1346. <http://www3.interscience.wiley.com/journal/117948473/abstract> [requires subscription].

This article looks at how FRBR can affect user tasks. It does not examine facets or interface requirements, focusing instead on metadata.

Among the findings of the authors’ Moving Image Collections (MIC) metadata experiment: “Participants ... relied more on content-descriptive metadata than physical-descriptive metadata for both identification and selection of moving images, although the search tasks assigned to them contained various nonsubject search requirements (e.g., ‘being able to be played on VCR’, ‘in color format’).” Results demonstrate a “significant interaction” between MIC metadata fields and the four FRBR generic tasks (find, identify, select, obtain).

Zhang, Yin, and Athena Salaba. “User Study of Searching for Moving Images: Implications of System Design for Library Online Catalogs” presented at the Tenth International ISKO Conference, Montreal, Canada, August 5, 2008.

[No online access]

FRBR and Moving Images

Campbell, Brad. "Moving Image Indexing: Theory and Technology," Fall 2005.

http://www.nyu.edu/tisch/preservation/program/student_work/2005fall/05f_1803_campbell_a3.pdf.

Examines indexing practices in the context of the growth of online moving image content and discusses granularity of indexing in different contexts. Discusses FRBR in relation to film production and the need to "account for the multiple stages a work goes through in preproduction and post production."

Committee on Cataloging: Description and Access, Task Force on the Cataloging of Works Intended for Performance. "Draft Document for Discussion by CC:DA and the Cataloging Community." <http://archive.ala.org/alcts/organization/ccs/ccda/tf-wks2.html>.

Recommended changes to AACR2R presented for discussion at ALA Midwinter 1997 include: 1) Development of general rules for works of mixed responsibility; 2) Development of rules for works realized through performance; 3) Development of a general rule covering reissued pre-existing works; and: 4) Adding a definition of "work" to the glossary.

Leigh, Andrea. "Context! Context! Context! Describing Moving Images at the Collection Level." *The Moving Image* 6, no. 1 (2006): 33-65.

http://muse.jhu.edu/journals/the_moving_image/v006/6.1leigh.html [subscription required].

Emerging models and standards for moving image description reveal "an awareness that works do not exist as islands alone at sea, that, in fact, works inspire new works that exist as distinct entities unto themselves but do not exist isolated from each other." Using examples from the UCLA Film & Television Archive, Leigh concludes that collection level description "is a promising means of providing access to large collections of materials, especially those that are anonymous or ephemeral in nature." She also discusses collection level cataloging in relation to FRBR.

———. "Lucy is Enceinte: the Power of an Action in Defining a Work." *Cataloging and Classification Quarterly* 33, no. 3/4 (2002): 99-127.
<http://www.informaworld.com/smpp/content~db=all~content=a904761657> [subscription required].

Abstract: "Although performed works are defined based on their collaborative nature and rules for mixed responsibility in AACR2R, descriptive practices are vague when applied to the cataloging of a television series—a type of performed work. Is the umbrella title identical as the title expressed in a bibliographic series? Or is it the collective title of the work and each episode a part? A key factor in this decision is in understanding how performed works are distinct from textual works. By highlighting the seminal television situation comedy *I Love Lucy* as an example, it is argued that a textual approach provides

an incomplete methodology for the retrieval of the component parts of a television series. Descriptive areas in AACR2R are explored, particularly issues related to seriality, whole-part relationships, and the use of work identifiers in the collocation of episodes.”

Moving Image Work-Level Records Task Force. “Moving Image Work-Level Records Task Force Report and Recommendations,” August 2009.
<http://www.olacinc.org/drupal/?q=node/27>.

This task force investigated and made recommendations on issues related to FRBR-based work-level records for moving image materials. The issues looked at included:

1. Moving Image Work Definition and Boundaries
2. Core Attributes and Relationships for Moving Image Works
3. Operational Definitions for a Sample of Moving Image Work Characteristics
4. Data Sources for Information about Moving Image Works
5. Extracting Work-Level Information from Existing MARC Manifestation Records

The task force decided on a top level called Work/Primary Expression (WPE), with the primary expression being usually, but not always, the original public release version. This approach consolidates into one record all the information associated with one WPE (both work and history of the primary expression) that can be re-used in association with any new expression or manifestation. The Task Force mapped out core attributes and relationships for moving image WPE records, and provided operational definitions and guidance for recording five common characteristics of moving image WPEs. A pilot project was attempted to extract the same five sample WPE attributes from existing MARC bibliographic records. The results showed that this process is unlikely to yield complete and accurate WPE information in all cases, but the success rate is high enough that it presents a reasonable strategy for initially populating WPE records.

This work of this Task Force forms the basis for the MIW Grant Project [until we have a better name].

Salaba, Athena, and Yin Zhang. “From a Conceptual Model to Application and System Development.” *Bulletin of the American Society for Information Science and Technology* 33, no. 6 (September 2007): 17-23. http://www.asis.org/Bulletin/Aug-07/Salaba_Zhang.pdf.

Provides brief examples of the types of collections to which FRBR can be applied and reviews FRBR system development. The National Film and Sound Archive and UCLA Film and Television Archive are briefly described.

“The FIAF RULES Revision Project: The State of the Art” presented at the FIAF Congress, Paris, April 18, 2008.
http://www.filmstandards.org/fiaf/wiki/lib/exe/fetch.php?media=fiaf_rulesngma.pdf.

Presents the results of a *Survey of Moving Image Cataloguing Practice in Film Archives* and describes the FIAF rule revision process, including the decision to follow the structure of RDA.

Turner, James M., and Abby A. Goodrum. "Modeling Videos as Works." *Cataloging and Classification Quarterly* 33, no. 3/4 (2002): 27-38. <http://dcc.syr.edu/miscarticles/Turner-Goodrum.pdf>.

Examining news video collection management, the authors find that "defining video works is extremely complex because of the large number of instantiations available and because of the intricate relationships among them." Managing video news material requires development of a taxonomy of material types and a way to model "relationships among works of news footage having a common progenitor or common ideational content."

Yee, Martha M. "FRBR and Moving Image Materials: Content (Work and Expression) versus Carrier (Manifestation)." In *Understanding FRBR: What It Is and How It Will Affect Our Retrieval Tools*, 117-130. Westport, Conn.: Libraries Unlimited, 2007. <http://escholarship.org/uc/item/60t54503>.

Yee examines the use of FRBR entities (work, expression, manifestation) in draft RDA and concludes that RDA is not fulfilling its promise. "The FRBR entities are barely referenced in the text, and the status quo is maintained; that is, any change in manifestation (carrier) results in the creation of a new bibliographic record. This is a disaster for catalog users interested in prolific works that exist in multiple expressions and manifestations...."

———. "FRBRization: a Method for Turning Online Public Finding Lists into Online Public Catalogs." *Information Technology and Libraries* 24, no. 3 (2005): 77-95. <http://escholarship.org/uc/item/7gx5v7q5>.

Yee argues that library catalogs are little better than finding lists and advocates fundamental redesign. From the conclusion: "...for a catalog to be a catalog, it must be capable of assembling all of the expressions/manifestations of a work held in a given collection so that the user can make his or her own selection: For example, is there an illustrated expression? If so, by whom? Are there edited expressions? If so, by whom? Are there translated expressions? If so, into what language and by whom? Do any expressions have manifestations available electronically via the Internet? If so, which expressions are so available? So far, OPACs have stumbled badly in this respect, even though the underlying records have numerous mechanisms built-in to support well-designed displays of works, related works, and works about the work."

———. "Manifestations and Near-Equivalents of Moving Image Works: a Research Project." *Library Resources & Technical Services* 38, no. 4 (1994): 355-372. <http://escholarship.org/uc/item/95x1t10f>.

Research on manifestations and near-equivalents in the UCLA Film and Television Archive finds support for “changes in cataloging practice that could lead to the creation of far fewer catalog records for the same work.”

- . “Manifestations and Near-Equivalents: Theory, with Special Attention to Moving-Image Materials.” *Library Resources & Technical Services* 38, no. 3 (1994): 227-256. <http://escholarship.org/uc/item/1541x7fz>.

Recommends changing cataloging practices so that near-equivalents are more often cataloged on the same record. Suggests that “true manifestations result when the continuity, i.e., visual aspect of the work, or the soundtrack, i.e., audio aspect of the work, or the textual aspect of the work actually differ, whether due to editing, the appending of new material, or the work of subsidiary authors creating subtitles, new music tracks, etc.”

- . *Moving Image Cataloging: How to Create and How to Use a Moving Image Catalog*. Libraries Unlimited, 2007. http://books.google.com/books?id=n4PQBLg1iWcC&printsec=frontcover&source=gbs_v2_summary_r&cad=0#v=onepage&q=&f=false [Google books partial view].

Chapters three through five address FRBR topics: moving image works, expressions and manifestations; represented and presented works; work identification and authorship; and location of FRBR Entities.

- . “The Concept of Work for Moving Image Materials.” *Cataloging & Classification Quarterly* 18, no. 2 (1993): 33-40. <http://escholarship.org/uc/item/6hk8h9vp>.

Yee discusses the concepts of work and related work as they apply to moving image works. “In a well-designed catalog, two items treated as the same work will display together and be represented as manifestations (editions) or copies of the same work to the user interested in a particular work.” She also concludes: “Two items with different footage should be treated as different works unless one has been made as a foreign language surrogate for the other. Primary editing, the editing of raw footage, should be held to create a new work; secondary editing, the editing of previously edited footage, should be held to create a new manifestation of a previous work. Complete rewriting of the textual aspect should be held to create a new work.”

FRBR and Music

Note: a number of articles in this section address the Variations project now in its third phase (Variations3). Variations is similar to the Moving Image Works Project in its use of a FRBR data model to distinguish between different instantiations of musical works. While the interface isn't necessarily faceted, users can click on an information icon to view additional metadata about specific works. When a search query yields multiple instantiations users may be given several options for disambiguation to drill down to the desired work.

Anderies, John. "Enhancing Library Catalogs for Music" presented at the Conference on Music and Technology in the Liberal Arts Environment, Hamilton College, June 22, 2004.
<http://academics.hamilton.edu/conferences/musicandtech/Presentations/Catalog-Enhancements.ppt>.

Access to music records can be improved through enhancements such as notated incipits, score images, audio content, and FRBR. Benefits of FRBR include: 1) Save time (works need only be cataloged once, etc.); 2) Easier cataloging; 3) Searches produce better results; 4) Brings together multiple manifestations in music; and 5) Better logic and organization.

Ayres, Marie-Louise. "Case studies in implementing Functional Requirements for Bibliographic Records [FRBR]: AustLit and MusicAustralia." *Australian Library Journal* 54, no. 1 (February 1, 2005): 43-54.
<http://www.alia.org.au/publishing/alj/54.1/full.text/ayres.html>

A useful review of the AustLit: Australian Literature Gateway, "the world's first major FRBR implementation." From the abstract: "In particular, the paper raises issues about re-purposing existing MARC records for FRBR storage and display in the context of the MusicAustralia project." From the conclusion: "Music poses significant FRBR challenges, not least because music works are much more likely to exist in more than one expression and manifestation than most other forms of cultural production. Conversely, the benefits to users of an enriched [FRBR] view of the Australian music universe would be very significant, furthering understanding of music works in their notated and performed representations."

———. "MusicAustralia: Building on National Infrastructure." Melbourne, 2004.
<http://www.nla.gov.au/nla/staffpaper/2004/ayres1.html>.

Boyd, Alastair. "The Worst of Both Worlds: How Old Rules and New Interfaces Hinder Access to Music." *Text.Serial.Journal*, October 22, 2005.
<http://pi.library.yorku.ca/ojs/index.php/caml/article/view/1389/712>.

Boyd reviews FRBR in the context of the shift from the card catalog with its controlled access to the keyword access of the online catalog. He concludes that "the thing that most needs beefing up to make the four FRBR entities explicit in catalogues is the principle of

uniform titles” (p. 23). “If the new cataloguing code enhances the scope of name-title headings (uniform titles) so as to better differentiate between “derivative” forms of works, and abolishes the old limits on the number of added entries, then our catalogue records will have the potential to provide amazingly precise and well-ordered search results” (p. 24).

Dunn, Jon W, and Constance A Mayer. “VARIATIONS: A Digital Music Library System at Indiana University” (1999).
<http://www.dlib.indiana.edu/variations/VARIATIONS-DL99.pdf>.

From the abstract: “This paper covers the motivations for the creation of VARIATIONS, an overview of its operation and implementation, user reactions to the system, and future plans for development.” From the conclusions: “Rather than simply distributing Indiana’s collections to other institutions and users, we ultimately see VARIATIONS as part of a distributed global digital music library with content contributed by many different libraries and institutions. In addition to networking issues discussed above, this will raise issues of distributed storage and caching strategies, distributed vs. centralized metadata, and unique object naming schemes.”

Dunn, Jon W., Donald Byrd, Mark Notess, Jenn Riley, and Ryan Scherle. “Variations2: Retrieving and Using Music in an Academic Setting.” *Communications of the ACM* 49, no. 8 (2006): 53-58. <http://delivery.acm.org/10.1145/1150000/1145314/p53-dunn.pdf?key1=1145314&key2=6448889521&coll=GUIDE&dl=GUIDE&CFID=64969488&CFTOKEN=58479640> [requires subscription].

This overview of Variations2 includes a useful summary of the metadata model used: “Variations2 is based on a relational metadata model focusing on the work that manifests itself as an instantiation (a particular recorded performance or score edition) [...]. The instantiation appears on a container, or physical recording (such as an album) or score. Multiple instantiations might appear on a single container. The digitized version of the container delivered to Works, instantiations, and containers can each involve contributors, individuals, or groups responsible for its creation. The composer is responsible for a work, while a performer, conductor, or editor is responsible for the instantiation of that work. While the Variations2 model is designed to meet the needs of classical music, it is based in part on the library community’s Functional Requirements for Bibliographic Records model and is an example of the general trend in libraries toward entity-relationship modeling for resource description (p. 54-55). Methods for streamlining metadata creation in Variations3 will include: 1) Identify musical works; 2) Sharing records among institutions; 3) Integrating metadata from other sources; and 4) Accepting user-contributed metadata (p. 57).

Fenske, David E., and Jon W. Dunn. “The VARIATIONS Project at Indiana University's Music Library.” *D-Lib Magazine* (June 1996).
<http://www.dlib.org/dlib/june96/variations/06fenske.html>.

A description of VARIATIONS by the Project Director. Among the goals of the project is improved access to information: “The VARIATIONS Project as a digital library project not only means better instructional and research tools, it also means improved

access to information: 1) retrieval of the full information object is linked to its corresponding bibliographic record in the online catalog; and 2) in most many cases particularly with graphic images and textural data, the information can be distributed to users elsewhere on the campus, on other campuses and potentially the world.”

IMSLP / Petrucci Music Library: The Free Public Domain Sheet Music Library. Project Petrucci LLC. http://imslp.org/wiki/Main_Page.

A “virtual library containing all public domain music scores, as well as scores from composers who are willing to share their music with the world without charge.” Allows browsing by composer name, composer period, composer nationality, and work genre.

Jürgen Diet, and Frank Kurth. “The Probado Music Repository at the Bavarian State Library,” December 30, 2008. ScientificCommons.
http://ismir2007.ismir.net/proceedings/ismir2007_p501_diet.pdf.

Includes discussion of FRBR and the repository’s extension of FRBR (“the work entity is extended to not only include complete works but also parts and unions thereof.”) The process of obtaining and transforming metadata is described: “The main source for the Probado metadata is the BSB cataloging database. It contains metadata for the whole library collection in the MAB-format, the German standard corresponding to the Anglo-American MARC-format. The MAB-records describing the Probado collections have to be transformed into the FRBR-based Probado repository database, a process called “FRBRization”. It turns out that this process can not be fully automated. Especially the extraction of the metadata on the work and expression levels needs manual intervention.”

Le Boeuf, Patrick. “Musical Works in the FRBR Model or “Quasi la Stessa Cosa”: Variations on a Theme by Umberto Eco.” *Cataloging & Classification Quarterly* 39, no. 3 & 4 (April 2005): 103-124.
<http://www.informaworld.com/smpp/content~db=all~content=a903662357> [requires subscription].

Abstract: “In this paper, the FRBR model is approached through Umberto Eco's semiotic analysis of the translation notion as developed in his *Dire quasi la stessa cosa: esperienze di traduzione*. Eco's taxonomy of forms of interpretation is used as a basis for a tentative abstract definition of what constitutes a mere expression of a given musical work and what constitutes a new, distinct musical work. The issues of aggregates of musical works, fragments of musical works, and works of vocal music, are also addressed. FRBR can be used as a basis for a model for the complex processes involved in the production and reception of musical works. And FRBR highlights complex bibliographic relationships that put musical works at the very center of myriads of interrelated systems that make up the catalog, which is viewed as a set of circular objects such as atoms or solar systems rather than as a straight linear listing.”

Music Library Association Bibliographic Control Committee. The BCC Working Group on Work Records for Music: Final Report. July 31, 2008 (minor update, Sept. 12, 2008). <http://www.musiclibraryassoc.org/BCC/BCC-Historical/BCC2008/BCC2008WGWRM1.pdf>

The working group made recommendations on attributes and elements that should be included in records for musical works in the Western art music tradition. They included elements from FRBR, FRAD, and RDA, as well as additional elements that they deemed important. They look at how musical works might conceptually function in a relational database, but do not discuss specific implementation questions.

They recommend that all work records should have (1) At least one controlled access point; (2) Source or sources; (3) One or more standardized, widely-recognized work identifiers, such as the ISWC (International Standard Musical Work Code) or thematic index numbers; (4) Database-specific record identifier (e.g., OCLC#, ARN)

In addition, they recommend that most records have (1) Medium, stated in a form usable in a controlled access point; (2) Key, if applicable; (3) Musical incipit; (4) Detailed instrumentation (including voices and voice ranges); (5) Topical and/or form/genre subject access terms, selected from an appropriate thesaurus or subject access scheme

They recommend the following elements where applicable: (1) Original language of the text; (2) Source of the text; (3) Movement titles; (4) Program or topical subject of textual work; (5) Name of characters or roles in large vocal works where appropriate; (6) First line of text, if different from title; (7) Additional information about individual movements in multi-movement works; (8) Variant title(s); (9) Numeric designator(s); (10) Genres; (11) Related works; (12) History (e.g., date and place of composition or first performance).

Notess, Mark, Jenn Riley, and Harriette Hemmasi. "From Abstract to Virtual Entities: Implementation of Work-Based Searching in a Multimedia Digital Library." In *Lecture Notes in Computer Science*, 157-167. Lecture Notes in Computer Science. Springer-Verlag, 2004. <http://www.springerlink.com/content/vjrp4hhbbkm4804m/> [requires subscription].

Abstract: "Libraries of digitized multimedia content provide access to virtual entities. In the case of music, where there are frequently many different performances, editions, and arrangements of a given work, the Variations2 metadata model, links all instances of a work to an abstract work record, thus yielding superior search capabilities to digital library users. This paper summarizes the motivation for addressing the music metadata problem and describes the Variations2 search user interface, which is based on our work-centric, FRBR-like metadata model."

Riley, Jenn. "Application of the Functional Requirements for Bibliographic Records (FRBR) to Music." In , 439-444. Philadelphia, PA: ISMIR, 2008. http://ismir2008.ismir.net/papers/ISMIR2008_244.pdf.

Riley reviews the application of FRBR to the Variations project. Because “phrases in the FRBR report suggest a Work for music should be interpreted broadly rather than strictly,” a “liberal and abstract” operational definition of Work is adopted (p. 440). “For jazz, our operational definition of a FRBR Work for music is the ‘tune.’ Performances of that tune, even widely diverging in nature, would be Expressions of that same Work. A fundamental transformation of the work would be considered a new Work. For pop music (itself a difficult-to-define category), we defined the ‘song’ as a Work. Covers and different performances by the same artist or group are therefore considered separate Expressions of that same Work. An album, when it represents a cohesive artistic whole, can also be considered a Work, with a whole-part relationship to the individual songs on the album” (p. 441).

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- . “Exploiting Musical Connections: A Proposal for Support of Work Relationships in a Digital Music Library.” London: ISMIR, 2005.
<http://www.dlib.indiana.edu/~jenlrile/presentations/ismir2005/riley.pdf>.

From the abstract: “As part of the NSF-funded Variations2 Digital Music Library project at Indiana University, we have developed a set of functional requirements defining how derivative and whole/part relationships between musical works should be acted upon in search results, and how these results should be displayed. This paper describes re-cent research into these relationships, provides examples why they are important in Western art music, outlines how Variations2 or any other music information retrieval system could use these relationships in matching user queries, and describes optimal displays of these relationships to end-users.”

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- . “Moving from a Locally-Developed Data Model to a Standard Conceptual Model” presented at the Proceedings of the 10th International ISKO Conference, Montréal, Canada, August 5, 2008.
<http://www.dlib.indiana.edu/projects/variations3/docs/isko2008.ppt>.

Describes the “encodings under consideration” for the Variations project and looks at how element sets relate to conceptual models.

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- . “Variations as a Testbed for the FRBR Conceptual Model.” *D-Lib Magazine* 14, no. 11/12 (December 2008).
<http://www.dlib.org/dlib/november08/11inbrief.html>.

A concise outline of what the Variations/FRBR project will do: “Convert the production Variations digital music library system deployed at Indiana University to use a FRBR-compliant data model; Create and release publicly a FRBRization algorithm for MARC records for musical scores and recordings, focusing particularly on appropriate handling of multi-Work Manifestations; FRBRize existing MARC records for all score and recording holdings in the IU William and Gayle Cook Music Library (approximately 80,000 bibliographic records for audio recordings and 105,000 records for scores), and load them into the Variations system; Make FRBRized records available for community

use via OAI-PMH, SRU, and batch download; Design and implement a new, openly-accessible search interface for discovering FRBRized data; Design and implement a new cataloging system for FRBRized data that takes advantage of the distinction between the FRBR entities yet supports efficient data entry, and; Perform usability testing on the new end-user and cataloger interfaces to evaluate their effectiveness.”

Riley, Jenn, and Alex Berry. “Implementing the FRBR Conceptual Model in the Variations Music Discovery System” presented at the DLP Brown Bag Series, October 28, 2009.
<http://www.dlib.indiana.edu/education/brownbags/fall2009/vfrbr/vfrbr.pdf>.

Presents project goals for the Variations/FRBR demonstration project. “Primary mission: provide a model for other FRBRized catalogs; Secondary mission: provide a useful and sustainable discovery system for music at IU.”

Riley, Jenn, Caitlin Hunter, Chris Colvard, and Alex Berry. “Definition of a FRBR-based Metadata Model for the Indiana University Variations3 Project.” Variations3, September 10, 2007. <http://www.dlib.indiana.edu/projects/variations3/docs/v3FRBRreport.pdf>.

“[A] subset of Variations3 project staff, including members from both the project Metadata and Development teams, undertook a study in Summer 2007 to define what a FRBR-based metadata model for digital musical audio recordings, bitmapped score images, and encoded score notation would look like” (p. 2).

Riley, Jenn, Casey Mullin, Chris Colvard, and Alex Berry. “Definition of a FRBR-based Metadata Model for the Indiana University Variations3 Project, Phase 2: FRBR Group 2 & 3 Entities and FRAD.” Variations3, July 9, 2008.
<http://www.dlib.indiana.edu/projects/variations3/docs/v3FRBRreportPhase2.pdf>.

A continuation of “Definition of a FRBR-based Metadata Model for the Indiana University Variations3 Project” issued in September 2007. From the introduction: “The current document takes the next step by extending our analysis to the FRBR Group 2 & 3 entities, and the entities and attributes described in FRAD. The current Variations3 system considers people and corporate bodies only as contributors and not as the subject of Works; therefore, FRBR and FRAD represent an expansion of our model in this area.”

Scherle, Ryan, and Donald Byrd. “The Anatomy of a Bibliographic Search System for Music.” In *Proceedings of the International Conference on Music Information Retrieval*. Barcelona: ISMIR, 2004. <http://www.dml.indiana.edu/pdf/ismir04search.pdf>.

Describes the design and implementation of the Variations system, which enables “musicians to search for music using familiar terms and relationships, rather than trying to decipher the methods libraries typically use to organize musical items.” The conclusion addresses metadata collection: “Cataloging items for use with the Variations2 system requires considerable human effort. This effort is in addition to the effort typically required by the library to catalog a item in MARC format. We are investigating methods

for increasing the amount of metadata that can be collected automatically. This includes information outside of MARC records, but also information currently available in MARC records that cannot easily be imported without human intervention. Another solution under investigation is cooperative cataloging, using a methods similar to the manner in which OCLC manages cooperative cataloging for MARC records.”

Smiraglia, Richard P. “Musical Works and Information Retrieval.” *Notes* 58, no. 4 (2002): 747-764. <http://muse.jhu.edu/journals/notes/v058/58.4smiraglia.html> [requires subscription].

“In an earlier paper David Thomas and I explored the concept of the musical work vis-à-vis its role in bibliographic control of musical documents. In this paper my purpose is to expand on that conceptual analysis in order to broaden our understanding of the importance of musical works as entities in the information retrieval process. To that end, definitions of works as entities (from the information retrieval perspective) and of musical works in particular (from the musicological perspective) will be presented. A taxonomic definition is accompanied by an epistemological perspective, including empirical evidence. Musical works, thus defined as entities for information retrieval, are seen to constitute sets of varying instantiations of abstract creations” (p. 748-749).

“Variations3 Metadata Guide Website.” Indiana University Digital Library Program. <http://www.dlib.indiana.edu/projects/variations3/metadata/guide/>.

This web site presents information on Variations3 metadata. Includes sections on cataloging workflow, fields and procedures, and special features.

Vellucci, Sherry L. “FRBR and Music.” In *Understanding FRBR: What It Is and How It Will Affect Our Retrieval Tools*, 131-152. Westport, Conn.: Libraries Unlimited, 2007. <http://lu.com/showbook.cfm?isbn=9781591585091>.

Vellucci discusses the ways in which the FRBR model is especially suited to the “complexities of the music bibliographic universe” and supports music cataloging efforts to group music resources into bibliographic families. Musical works, similar to moving image works, come issued in a variety of versions, editions and formats. The FRBR model provides a means of describing the resources and the relationships that exist between the various resources—scores, sound and video recordings, etc. Vellucci’s discussion of the challenge of consensus on work boundaries points to the different ways *The Magic Flute* would be perceived and searched for in the music community versus the film community. Is the work a movie that happens to be about an opera, or a performance of an opera that happens to be on film? Vellucci suggest that efforts to agree upon one operational definition of a work are unrealistic and that identifying works, particularly complex works, will remain culturally-bound as well as the charge of catalogers. Her solution to the longstanding disagreement around main entry is the use of role identifiers to indicate the part that each contributor played in the creation of the work.

Yee, Martha M. “Musical Works on OCLC, or, What if OCLC Were Actually to Become a Catalog?” *Music Reference Services Quarterly* 8, no. 1 (January 2001): 1-26.

<http://escholarship.org/uc/item/2m96b63w>.

Abstract: "Music catalogers and audiovisual catalogers have long had a problem with AACR2 because of its failure to deal adequately with works intended for performance. When a work intended for performance, such as an opera, is actually performed and the performance is recorded on video or film, many music catalogers consider this performance to be equivalent to a sound recording of the performance (which would be entered under the composer of the opera), while most film catalogers consider the video or film to be a work of mixed authorship to be entered under title (with the director, screenwriter, cinematographer, etc., considered to be authors of the same level of importance as the composer). This disagreement led to the creation of a task force by the Cataloging Committee: Description and Access (CC:DA) at the American Library Association and was one of the developments that caused the Joint Steering Committee for Revision of AACR to convene the International Conference on the Principles and Future Development of AACR in Toronto in October of 1997 to discuss possible revision of the cataloging rules."

Other (Including Bibliographies)

Allen, Bradley P. "Faceted classification and FRBR." *Bradley P. Allen*, September 5, 2007.
<http://bpa.tumblr.com/post/10814190/faceted-classification-and-frbr>.

Bradley briefly discusses FRBR and facets in relation to cataloging and search systems. He redefines FRBR's Group 1 entities, shifting the focus from entity to attribute, and posits that this would expedite the creation of a FRBR-ized catalog. "Instead of having to hand-craft entities at the work, expression and manifestation levels as well as that of the item, they emerge bottom-up out of the item data, and can be driven by researcher usage rather than forcing catalogers to take on this additional burden."

AMIA Subcommittee for the Compendium of Cataloging Practice. *AMIA Compendium of Moving Image Cataloging Practice*. Beverly Hills, Calif.: Association of Moving Image Archivists and The Society of American Archivists, 2001.

The cataloging practices of twenty-seven institutions are surveyed. An OLAC reviewer states: "This book would be useful to institutions either making decisions on cataloging their collections of moving images or reevaluating their cataloging procedures. The book provides information on how a variety of institutions handle a particular cataloging question, and what approach is the most popular among the institutions in this small sample." <http://www.olacinc.org/drupal/?q=node/64>

Besser, Howard. "Bibliography of Moving Image Indexing."
<http://www.gseis.ucla.edu/~howard/Courses/287-mov-index-bib.html>.

A bibliography for a course, [Digital Collections of Still and Moving Images](#), offered in Winter 2000 at UCLA's Graduate School of Education & Information Studies.

Bowen, Jennifer. "Metadata to Support Next-Generation Library Resource Discovery: Lessons from the eXtensible Catalog, Phase 1." *Information Technology and Libraries* 27, no. 2 (June 1, 2008): 6-19. Available from UR Research: <http://hdl.handle.net/1802/5757>

The XC Project is addressing the need for metadata that will "support a next-generation discovery system" and is working to "ensure that library metadata will continue to support online resource discovery in the future." Like the MIW Project, XC incorporates existing metadata in new displays of information, such as a faceted interface. Unlike the MIW Project, the interface will incorporate Web 2.0 technology and use OCLC's Faceted Application of Subject Terminology (FAST) rather than LC Subject Headings as the basis for the creation of facets.

Clair, Kevin. "Developing an Audiovisual Metadata Application Profile: A Case Study." *Library Collections, Acquisitions, and Technical Services* 32, no. 1: 53-57.
<http://dx.doi.org/10.1016/j.lcats.2008.05.005> [ScienceDirect access required].

Abstract: "Digitizing audiovisual materials is gradually being prioritized by libraries and other cultural institutions; however, metadata guidelines and best practices for describing these collections have not been fully developed. This paper outlines the development of local guidelines for audiovisual metadata at the Penn State University Libraries in the context of one digital project, and situates those guidelines within the process of developing an audiovisual metadata application profile for use across institutions."

FRBR Review Group. "FRBR Bibliography."

<http://archive.ifla.org/VII/s13/wgfrbr/bibliography.htm>.

This extensive bibliography includes a section on *Application to Audio-Visual Documents*.

Green, David, Using Digital Images in Teaching and Learning: Perspectives from Liberal Arts Institutions. Academic Commons (October 2006).

<http://www.academiccommons.org/imagereport>

From the abstract: "The study focuses on the pedagogical implications of the widespread use of the digital format. However, while changes in the teaching-learning dynamic and the teacher-student relationship were at the core of the study, related issues concerning supply, support and infrastructure rapidly became part of its fabric. These topics include the quality of image resources, image functionality, management, deployment and the skills required for optimum use (digital and image 'literacies')."

Hegna, Knut. "Using FRBR." *High Energy Physics Libraries Webzine*, no. 10 (December, 2002). <http://library.web.cern.ch/library/Webzine/10/papers/1/>.

Abstract: "This article presents a possible user interface based on bibliographic data entered according to the FRBR conceptual model. The main ideas are inspired by the old card catalogue which included a structure in the filing system which was lost in the process of computerization of the catalogues. When pulling out a drawer in the card catalogue you were made aware of the structure by the guide cards, the filing logic and the relations represented by see and see also references."

Facets are not discussed.

Hegna, Knut, and Eeva Murtomaa. "Data mining MARC to find: FRBR?" In *68th IFLA Council and General Conference*. Glasgow: IFLA, August 18, 2002.

<http://archive.ifla.org/IV/ifla68/papers/053-133e.pdf>.

Abstract: "Summarizes a project where MARC data from two national bibliographies was analysed in the light of the data model presented in the FRBR study from IFLA. During the project we found that even though the information in the MARC records holds attributes relevant for identifying the work, expression and manifestation entities, the accuracy and formal syntax are too simple to be properly handled by programs. Some of the results may be used to present better hit lists in OPACs. The project presented two

suggestions for an OPAC user interface based on the ideas of the FRBR study and on the results of the project.”

The article discusses use of FRBR elements to yield better ordering of search results in OPACs. While the article suggests how to incorporate FRBR into an interface, it does not examine use of facets.

Ho, Jeannette. “Cataloging Practices and Access Methods for Videos at ARL and Public Libraries in the United States.” *Library Resources & Technical Services* 48, no. 2 (April 2004): 107-121. <http://ala.org/ala/mgrps/divs/alcts/resources/lrts/abs/48n2.cfm> [Abstract only].

From the abstract: “This paper reports the results of a survey exploring the level of cataloging and access methods applied to videos, the degree to which catalogers view screen credits, and how often various credit information is included and used to create access points in catalog records in selected U.S. public and Association of Research Libraries member libraries. [...] Results showed that most libraries cataloged videos at the full level and provided access points to similar types of information in catalog records.”

“MIC Core Data Element Registry.” Moving Image Collections, February 11, 2004. http://gondolin.rutgers.edu/MIC/text/how/unioncat_registry_table_01_05.htm.

Provides scope and usage notes for each element in the registry.

Miller, David, and Patrick Le Boeuf. ““Such Stuff as Dreams Are Made On”: How Does FRBR Fit Performing Arts?” *Cataloging & Classification Quarterly* 39, no. 3 & 4 (April 2005): 151-178. <http://www.informaworld.com/smpp/content~db=all~content=a903662359> [requires subscription].

Abstract: “Since it is obviously impossible to “hold” live performances in library collections (in contrast to recorded performances and motion pictures), such creations are barely accounted for in library catalogues and cataloging prescriptions, even as a topic in subject headings. The way AACR and the Anglo-American cataloging tradition deals with performing arts is discussed at length. Conversely, specialized institutions have developed their own rules for the description of live performances: the Dance Heritage Coalition (New York) creates authority records for choreographic works, and the Département des Arts du Spectacle at Bibliothèque nationale de France creates bibliographic records for theatrical, operatic, and choreographic performances. As a conclusion, a tentative modeling of performing arts as bibliographic entities, strictly based on FRBR, is proposed.”

Mimno, David, Gregory Crane, and Alison Jones. 2005. “Hierarchical Catalog Records.” *D-Lib Magazine* 11, no. 10 (10). doi:[10.1045/october2005-crane](https://doi.org/10.1045/october2005-crane). <http://www.dlib.org/dlib/october05/crane/10crane.html>.

From the abstract: “Much work has gone into finding ways to infer FRBR relationships between existing catalog records and modifying catalog interfaces to display those relationships. Relatively little work, however, has gone into exploring the creation of catalog records that are inherently based on the FRBR hierarchy of works, expressions, manifestations, and items. The Perseus Digital Library has created a new catalog that implements such a system for a small collection that includes many works with multiple versions. We have used this catalog to explore some of the implications of hierarchical catalog records for searching and browsing.”

Explores problems inherent in incorporating FRBR into a catalog. Mentions, but does not deal with interfaces in any great detail. Focus is on cataloging records themselves.

“Moving Image Collections - Bibliography.” http://mic.loc.gov/catalogers_portal/cat_biblio.htm.

A bibliography on the Moving Image Collections site.

OCLC FictionFinder. <http://fictionfinder.oclc.org/>

Description: “This project applies principles of the FRBR model to aggregate bibliographic information above the manifestation level. Records are clustered into works using the OCLC FRBR Work-Set Algorithm. The algorithm collects bibliographic records into groups based on author and title information from bibliographic and authority records. Author names and titles are normalized to construct a key. All records with the same key are grouped together in a work set. Data elements from records within a given work set are aggregated at the work level. For example, summaries, subject headings, and genre terms are selected from individual bibliographic records and presented at the work level. The resulting descriptions are often richer and more complete than the descriptions in individual bibliographic records. With the exception of cover art and literary award information, FictionFinder records are built exclusively from data elements in bibliographic and authority records.”

<http://www.oclc.org/research/activities/fictionfinder/default.htm>

FictionFinder uses FRBR data model but does not offer options for refining searches after initial query, only the means to navigate between different sets of (often overlapping) results.

Turner, James M. “From ABC to http: The Effervescent Evolution of Indexing for Audiovisual Materials.” *Cataloging & Classification Quarterly* 48, no. 1 (January 2010): 83-93. <http://www.informaworld.com/smpp/content~db=all?content=10.1080/01639370903341919> [requires subscription].

Abstract: “Indexing methods for audiovisual materials had not yet settled when the arrival of the World Wide Web upset any stability that existed in this area. New possibilities have now opened up for indexing digital audiovisual materials in a networked environment. This article, traces some of the methods used for organizing collections of audiovisual materials, give a general portrait of how various types of them

are organized today, and using indicators that have become manifest, speculate on some future developments in this area.”

Varghese, M.. "Relevance of a Classified Catalog in the FRBR Perspective and a Proposed Model with ISBD Description and Faceted Class Number as Key Attribute" *Cataloging & Classification Quarterly* 46, no. 3 (July 2008).

<http://www.informaworld.com/10.1080/01639370802034532> [requires subscription]

Preprint version: <http://eprints.rclis.org/10038/1/varghese-paper.pdf>

From the abstract: “the article gives an entity relationship diagram for a bibliographical database and a model of a classified catalog with description as per the ISBD and access points derived on the basis of Ranganathan's rules of the Classified Catalogue Code.”

Extensively discusses use of FRBR in bibliographic databases. Although faceted classification is discussed, the article does not examine requirements or potential attributes of the user interface.

“Variations2 Papers & Presentations.” <http://www.dml.indiana.edu/papers.html>.

A bibliography available at the Variations2 web site.

Zhang, Yin, and Athena Salaba. “Major Issues Facing FRBR Research and Practice Identified in a Delphi Study.” 2009. http://frbr.slis.kent.edu/publications/delphi_issues.pdf.

Abstract: “This Delphi study is part of a three-year IMLS-funded project concerning the research and development of FRBR-based retrieval systems that support user tasks and facilitate effective information seeking. The major purpose of the Delphi study was to identify critical issues and challenges within FRBR research and practice by surveying a group of FRBR experts, including researchers, system developers, and members of related FRBR review committees. This brief summary lists the critical issues identified as a result of the study, along with their rating rank, in five major areas of FRBR research and development based on themes found in existing literature: (1) the FRBR model, (2) FRBR-related standards, (3) FRBR applications, (4) FRBR system development, and (5) FRBR research.”

Mentions the need for further development of interfaces that allow for the incorporation of the FRBR model in the metadata. Interfaces are not heavily discussed and facets aren't mentioned at all.

———. “User Interface for FRBR User Tasks in Online Catalogs.” *72nd American Society for Information Science and Technology Annual Meeting*. Vancouver, British Columbia, November 6-11, 2009.

<http://frbr.slis.kent.edu/presentations/ASIST2009-FRBR-interface.pdf>

Examines several options for incorporating FRBR into an OPAC interface. Refining searches by author, subject, format, etc. were among the options provided. The study

itself asked users to perform several types of search tasks, none of which were really exploratory and some of which were known-item. While users could refine results the study did not focus on one method (i.e., facets, tag cloud) more than another.