Definition of a FRBR-based Metadata Model for the Indiana University Variations3 Project
Phase 2: FRBR Group 2&3 Entities and FRAD
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Introduction

The Variations2 Digital Music Library Project, a research initiative undertaken at Indiana University with funding from the National Science Foundation from 2000-2005, developed and implemented a work-based metadata model for music. This metadata model allowed for the easier linking of points in any recording of a musical work to any notational representation of it, and for work-level discovery of recordings and scores in the system. This model has been described as "FRBR-like" and is mentioned in various discussions of FRBR-based systems, but it is not technically a FRBR implementation. As part of a follow-on project called Variations3, Indiana University has been continuing to refine the metadata model and investigate whether it should become a true FRBR implementation.

To this end, in September 2007, the Variations3 team released a white paper, "Definition of a FRBR-based Metadata Model for the Indiana University Variations3 Project," <http://www.dlib.indiana.edu/projects/variations3/docs/v3FRBRreport.pdf>, which outlined the application of FRBR Group 1 entities and attributes to musical materials, providing a description of our understanding of their definitions and selecting attributes and relationships needed for use of the FRBR model as the basis for bibliographic information in the Variations3 system. 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.

The next phase of our work examining how to move Variations3 to a FRBR model will be the analysis of various FRBR/FRAD encodings, in order to select a formal data model for use in Variations3, or to conclude that no existing encoding will meet or needs, in which case we will develop our own. We will undertake this third phase in late summer and early fall 2008.

High-Level Decisions

The FRAD report presents requirements for authority data for each of the entities in the FRBR report, with the addition of the Family entity to Group 2. In our investigations into FRBR and FRAD, we were repeatedly faced with situations where a FRBR entity contained an attribute that we felt would best be placed under authority control, such as form/genre or instrumentation for Works and Expressions. In general, we believed it would be beneficial to model features best under authority control as Group 3 entities with the appropriate relationships to the entity in question, rather than as attributes on Group 1 entities, to take advantage of the features of FRAD supporting the authority control process. For the specific cases of form/genre and instrumentation, these features are considered "subjects" in current MARC/AACR2 cataloging practice, although this may not be the best way to think of them. It was tempting to convert attributes to entities and relationships in a fully robust way, following the work of the CIDOC-CRM/FRBR harmonization efforts.[1] Examples of this extension might be a Person-Place relationship for a Person entity's place of residence or Manifestation-Place relationship for the place in which the manifestation was created, rather than treating these features as attributes. After much deliberation, and after consultation with the Variations3 Advisory Board[2], we decided not to create these extra relationships or to consider attributes such as form/genre and instrumentation and Concept entities with a relationship to a Work rather than its attributes, as it seemed not in keeping with the original spirit of FRBR. It is possible that some of the relationships we were seeking fall under the domain of the ongoing Functional Requirements for Subject Authority Records (FRSAR) work. We therefore anxiously await the FRSAR draft report.

The treatment of Names/Identifiers and Controlled Access Points as entities in FRAD was the subject of much discussion by the Variations3 team. Current practice in Variations3 is to use controlled access points as both headings and identifiers, mirroring current library practice, rather than to treat them as separate entities. The primary benefits of treating Names/Identifiers and Controlled Access Points as entities come in multi-lingual catalogs, where headings generated from different rule sets must interoperate. The Variations3 system is not expected to operate in this type of environment. Therefore, this report takes the preliminary approach of following FRBR rather than FRAD and treats the name of an entity as one of its attributes, rather than as a separate but related entity. We plan to further study this issue in our next phase of work, examining various encodings for FRBR/FRAD data, to further contemplate the implications of this issue, both for the efficient operation of the Variations3 system and for the role we hope Variations3 will serve as a model for others implementing FRBR.

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[1] International Working Group on FRBR and CIDOC CRM Harmonisation. "FRBR Object-oriented Definition and Mapping to FRBR-ER." Version 0.9 draft, January 2008. http://cidoc.ics.forth.gr/docs/frbr_oo/frbr_docs/FRBR_oo_V0.9.pdf

[2] Variations 3 Advisory Board Members are: Linda Barnhart, University of California, San Diego; Richard Griscom, University of Pennsylvania; Jerome McDonough, University of Illinois at Urbana-Champaign; Pat Riva, Bibliothèque et Archives nationales du Québec; and MacKenzie Smith, Massachusetts Institute of Technology

Group 2 Entities, including Attributes from FRBR and FRAD

Person

Definition for Variations3

The FRBR and FRAD reports define a Person as an individual, and then go on to expand this definition somewhat. A Person in a Variations3 implementation of FRBR will be something like a "bibliographic identity," covering individual people, separate personas for a specific individual person as determined by current library cataloging rules, and single personas adopted by a group of people or different individuals over time. Fictional people such as mythological figures and characters from literature qualify as a Person under this definition, although these Persons are more likely to be used as the subjects of Works rather than their creators.

Relationships needed

The following relationships between the Person entity and other entities will be needed in the Variations3 setting:

- Person/Person, Pseudonymous
- Person/Person, Attributive
- Person/Person, Sibling
- Person/Person, Parent/Child
- Person/Family, Membership
- Person/Corporate Body, Membership

Relationships not needed

No relationships in the following category will be needed, as for the time being we are not treating Name as an entity:

- Person/Name

The following relationship will also not be needed, as it can be derived from common connections to other entities:

- Person/Person, Collaborative

Attributes needed

- Name of person (FRBR)
- Dates associated with the person (FRBR and FRAD). Would be used for any dates in a person's life deemed relevant to records.
- Title of person (FRBR and FRAD)
- Other designation associated with a person (FRBR and FRAD)
- Gender (FRAD)
- Place of birth (FRAD)
- Place of death (FRAD)
- Place of residence (FRAD)
- Country (FRAD)
- Affiliation (FRAD) Would be used to record "schools" of composition, performance, etc., as defined by the community and not just by the individual himself or herself.
- Address (FRAD)
- Profession/occupation. (FRAD) Terms such as "pianist" would be useful for a person disambiguation display, and provide more control over this data than deriving it from Work/Expression contribution roles.
- Biography/history (FRAD)

Attributes not needed

- Language of person (FRAD)
- Field of activity (FRAD)

Additions to FRBR or FRAD needed

No additions to FRBR or FRAD are needed to support the Person entity for musical materials.

Family

Definition for Variations3

The Family entity is introduced in FRAD, where it is defined as "two or more persons related [...] or [who] otherwise present themselves as a family." Variations3 will use the Family entity as the subject or creator by way of commission for a Group 1 entity. Families will also be used to group and track relationships between Persons. It is unlikely that a Family would be used in Variations3 to represent a composer of a Work or performer of an Expression. A family-based performing group (such as the Jackson Five) would operate as a Corporate Body for the purpose of recording and performance.

Families will likely be treated in the Variations3 system as very similar to Corporate Bodies.

Relationships needed

Only the relationships between Families and other entities described elsewhere in this report will be needed.

Relationships not needed

No relationships in the following category will be needed, as for the time being we are not treating Name as an entity:

- Family-Name

Family to Family relationships in general will not be needed in the Variations3 setting, as we expect Families to exist rarely and no system functions are likely to operate on this data if it were supplied. This specific relationship described in FRAD will not be implemented:

- Family/Family, Geneological

Attributes needed

- Dates of family (FRAD)
- Places associated with the family (FRAD)
- History of family (FRAD)

Attributes not needed

- Type of family (FRAD)

Additions to FRBR or FRAD needed

The following attribute will be needed in a Variations3 implementation of FRBR, due to our preliminary decision not to make use of the Name entity, and the fact that the Family entity was not present in the original FRBR report:

- Name of family

Corporate Body

Definition for Variations3

Corporate Body is defined in FRBR as "an organization or group of individuals and/or organizations acting as a unit." A Corporate Body in Variations3 will be used to represent both an abstract group and a specific instance of that group. For example, a Corporate Body could represent a recurring summer festival orchestra and the festival orchestra as it was made up in a specific year, with a relationship between the two. In keeping with the general approach of Group 2 entities being creators of Group 1 entities and Group 3 entities being subjects of Group 1 entities, bodies such as festivals will be modeled as Corporate Bodies when they are associated with the creation of an Expression and Events when they are subjects of any Group 1 entity.

Relationships needed

In addition to the relationships between Corporate Bodies and other entities described elsewhere in this report, the following relationships will be needed:

- Corporate Body/Corporate Body, Hierarchical
- Corporate Body/Corporate Body, Sequential

Relationships not needed

No relationships in the following category will be needed, as for the time being we are not treating Name as an entity:

- Corporate Body-Name

Attributes needed

- Name of the corporate body (FRBR)
- Number associated with the corporate body (FRBR)
- Place associated with the corporate body (FRBR and FRAD)
- Date associated with the corporate body (FRBR and FRAD)
- Other designation associated with the corporate body (FRBR and FRAD)
- Type of corporate body (FRAD)
- Address (FRAD)
- Field of activity (FRAD)
- History (FRAD)

Attributes not needed

- Language of the corporate body

Additions to FRBR or FRAD needed

No additions to FRBR or FRAD are needed to support the Corporate Body entity for musical materials.

Group 3 Entities, including Attributes from FRBR and FRAD

Concept

Definition for Variations3

The FRBR report defines a concept as "an abstract notion or idea," including fields of knowledge such as economics, religions, ideologies, or schools of thought such as post-modernism. Our interpretation of the concept entity is that it can also represent classes of people and animals or allegorical characters such as Death. Concept will be used in Variations3 to record topical characteristics of music (which can appear both in music that has words and in music that does not).

Relationships needed and not needed

FRBR and FRAD define no relationships between Concept and other entities beyond the basic Group 1 to Group 3 subject relationship depicted in the high-level diagrams.

Attributes needed

- Term for the concept (FRBR)
- Type of concept (FRAD)

Attributes not needed

None.

Additions to FRBR or FRAD needed

No additions to FRBR or FRAD are needed to support the Concept entity for musical materials.

Object

Definition for Variations3

The FRBR and FRAD reports define an object as "a material thing." The reports go on to give a very broad definition that includes all objects manmade or naturally occurring that are fixed, movable, or moving and that may or may not exist in the present day. Both reports limit the definition to object that serve as subjects of Works. Examples given by the reports include only manmade objects such as The Lusitania and Buckingham Palace. For Variations3, Objects will likely be of most use when an object is the subject of a song, such as a piece about a work of art, and in the case of where a piece is performed on a specific well known instrument.

Relationships needed and not needed

FRBR and FRAD define no relationships between Object and other entities beyond the basic Group 1 to Group 3 subject relationship depicted in the high-level diagrams.

Attributes needed

- Term for the object (FRBR)
- Date of production (FRAD)
- Place of production (FRAD)
- Producer/fabricator (FRAD)
- Physical medium (FRAD)

Attributes not needed

- Type of object (FRAD)

Additions to FRBR or FRAD needed

No additions to FRBR or FRAD are needed to support the Object entity for musical materials.

Event

Definition for Variations3

The FRBR report defines an event as "an action or occurrence." The FRAD report elaborates on this, citing cases such as meetings, sporting events, expeditions, broad periods of time (e.g. epochs, eras), and periods of time defined in relation to historical events (e.g. cultural, artistic, philosophical movements); additionally, an event may be pre-historical, historical, current or planned for the future. For Variations3, Events such as music festivals will be modeled as Group 3 Events when they are the subjects of Works, and as Corporate Bodies when they have responsibility for creation of Works or Expressions.

Relationships needed and not needed

FRBR and FRAD define no relationships between Event and other entities beyond the basic Group 1 to Group 3 subject relationship depicted in the high-level diagrams.

Attributes needed

- Term for the event (FRBR)
- Date associated with the event (FRAD)
- Place associated with the event (FRAD)

Attributes not needed

None.

Additions to FRBR needed

No additions to FRBR or FRAD are needed to support the Event entity for musical materials.

Place

Definition for Variations3

The FRBR report defines a Place as "a location." The FRAD report elaborates on this, citing cases such as terrestrial and extra-terrestrial locations, pre-historical, historical, current and future locations, geographic features, geo-political jurisdictions. For

Variations3, fixed, naturally occurring things such as mountains and waterfalls will be considered Places rather than Objects.

Relationships needed and not needed

FRBR and FRAD define no relationships between Place and other entities beyond the basic Group 1 to Group 3 subject relationship depicted in the high-level diagrams.

Attributes needed

- Coordinates

Attributes not needed

- Other geographical information

Additions to FRBR or FRAD needed

No additions to FRBR or FRAD are needed to support the Place entity for musical materials. Documented relationships between one place and another will be useful to enhance retrieval, but we expect to draw these from external gazetteers or other place name services rather than storing them in the Variations3 FRBR-based system.

Supplemental Information

Information on the Variations Projects

Variations3 home page <http://www.dlib.indiana.edu/projects/variations3/>

Variations2 papers and presentations <http://www.dml.indiana.edu/papers.html>

Variations2 metadata documentation <http://www.dml.indiana.edu/metadata.html>