From Variations to Variations2

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What is Variations2?

- A digital library system that delivers near CD-quality digital audio to users at computers, via the network.
- Also includes a series of pedagogical tools that provides faculty members, students (and even casual listeners) with new ways to interact with music materials.
Who developed Variations2?

- Staff in the IU Digital Library Program, University Information Technology Services (UIITS), William and Gayle Cook Music Library, among others.
- With assistance from a $3 Million Grant from the National Science Foundation and the National Endowment for the Humanities, awarded in September of 2000.
Establish a digital music library test-bed system supporting multiple formats: audio, video, score images, score notation.

Develop multiple interfaces for specific user applications in the library and classroom.

Conduct research in metadata, usability, copyright and networking.

http://variations2.indiana.edu/
What is different?

- Based on newer, current hardware (no more waiting 3-5 minutes for recordings to start playing).
  - Old: an IBM 3494 with three IBM 3590E Magstar tape drives, attached to an IBM RS/6000 H80
  - Each 3590E tape cartridge holds up to 20 GB of data.
  - New: Apple’s QuickTime Streaming Server running under Mac OS X on an Apple Xserve G5 server with two Apple Xserve RAID disk arrays attached.
  - Total usable storage capacity of about 6 TB.
  - Variations2, uses MP3 (MPEG-1 layer 3) audio files at 192 kilobits/second, which are about half the size of the MPEG-1 layer 2 files used in the original.
What else is different?

- Available on Macs as well as Windows PCs.
- Pedagogical tools:
  - Bookmarks
  - Playlists
  - Visual Analyses
  - Score Annotation Tools
  - “Drop the Needle” Listening Drills.
- Access Control. Variations2 can be installed on computers outside the Music Library.
What has stayed the same?

- Existing links in IUCAT, Music Library reserve lists, course web pages etc. will be redirected to Variations2 automatically.
- Will have the same reliability and stability as the original.
On with the demo…
Variations2 Data Model

- Similar to FRBR from IFLA, but designed specifically for music
- Uses entity-relationship analysis to identify key concepts, properties, and relationships of musical objects
- Identifies, separates, and relates logical and physical layers of musical works and their physical manifestations
- In addition to descriptive metadata, also includes structural and technical metadata
Data Model: Entities

- **CONTRIBUTOR**: represents people or groups that contribute to a work, instantiation, or container.
- **WORK**: represents the abstract concept of a musical composition or set of compositions.
- **INSTANTIATION**: represents a manifestation of a work as a recorded performance or a score.
- **CONTAINER**: represents the physical item or set of items on which one or more instantiations of works can be found (e.g., CD, score).
- **MEDIA OBJECT**: represents a piece of digital media content (e.g., sound file, score image).
Data Model: Example

CONTRIBUTORS
- Horowitz, pianist
- Uchida, pianist
- Mozart, composer
- Broder, editor

WORKS
- Sonata K. 279
- Fantasia K. 397

INSTANTIATIONS
- Sonata K. 279 recorded in 1965, Carnegie Hall
- Fantasia K. 397 recorded in 1991, Tokyo, Suntory Hall

CONTAINERS
- CD: Mozart, Piano Works
- Score: Mozart, Piano Fantasia K.397

Prepared from autographs in 1960
V2 cataloging interface

- **Contributor** record
- Work record
  - Description
  - Contributors
  - Structure
- Container record
  - Description
  - Contributors
  - Structure
- **Instantiation** record, with Contributors
- **Media Object** record
Data Model: Benefits

- Increases comprehensiveness and precision of search results
- Provides linkage of works in multiple formats on various levels
- Allows for navigation within the work and between its different instantiations
- Provides appropriate and complete descriptive, administrative, and structural metadata for each entity
- Provides for Variations2 as a research system in addition to a discovery system
Next steps for V2 data model

- Towards sustainability
  - Improved MARC mapping
  - Cooperative cataloging
  - Critical mass of work and creator records
- Improve work relationships
What’s next?

Variations3?

Proposal submitted to IMLS

“Music Library in a box”

“…create a digital music library and learning system that can be easily deployed at a wide range of college and university libraries with minimal technical support and minimal cost to the institutions.”

Incorporate emerging subscription based services to provide consistent, user-friendly interface.

Continue development by adapting the system to run on a wide variety of server operating systems and database platforms.
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Further reading


Questions?

- For more information:
  - Variations2 web site
  - pponella@indiana.edu, jenlrile@indiana.edu

- These presentation slides:
  <http://www.dlib.indiana.edu/~jenlrile/presentations/librariansDay2005/v2.ppt>