

The Standards Paradox: Case Studies in Conforming to or Abandoning Metadata Standards

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The problem

“Standards are like toothbrushes, everyone agrees that they’re a good idea but nobody wants to use anyone else’s.” *



* I heard this from Murtha Baca at the Getty, but she got it from someone else...

Seriously, though...

- ❑ We have to make decisions about how to represent metadata internally in our systems
- ❑ We all have our own unique needs
- ❑ Every collection/project is different
- ❑ One solution does not fit all

HOWEVER, we cannot afford to make a new solution from scratch for every new pool of content.



What are metadata standards for?

- Interoperability
- Providing clear representations of conceptual models
- Reminding you of the sorts of things you ought to record

How do metadata standards differ?

- Underlying conceptual model
- Focus of description
 - Analog vs. digital
 - Intellectual content vs. carrier
- Use of data
 - Discovery
 - Description
 - Interpretation
 - etc...



Benefits of using standards internally

- ❑ Fewer decisions to make (but far from none)
- ❑ Some expectation of interoperability (but far from assured)
- ❑ Less risk you're forgetting something important

Drawbacks of using standards internally

- Usually have to be creative with implementation
- Little room for growth of functionality over time
- Standards evolve over time – you either get behind or have to repeatedly upgrade

Benefits of designing your own metadata structures

- You get to do it the way you want!
- Can more easily meet the unique needs of a particular set of materials or user base
- Can take shortcuts
 - Multiple versions
 - Combining different types of metadata
- (And it's fun to design new things.)

Drawbacks of designing your own metadata structures

- Still need to support standards in some way
 - Must write mappings to standard formats
 - Have to upgrade export mechanisms whenever target standards change
- Conceptual model underlying your implementation may not match target export standards, making mapping difficult



Scope of today's discussion

- Focus is on descriptive metadata structure standards
- The same principles would apply to other types of metadata
 - Other purposes – technical, structural, etc.
 - Other levels – controlled vocabularies, etc.

Variations2/3

From local model to standard model

Variations2 (2000-2005)

- Research project funded by NSF and NEH
- Variations2 expanded on existing system by:
 - expanding representations of music in other media: score images, encoded scores
 - creating additional metadata and new software tools for enhanced searching, synchronization, and navigation
 - creating tools for pedagogical use

Variations2 architecture (2005)

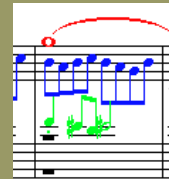
content



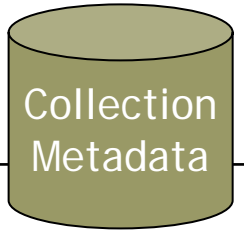
digitized audio



scanned scores



encoded scores



user interface



users

faculty

students

librarians

10/31/07

DL Brown Bag Series

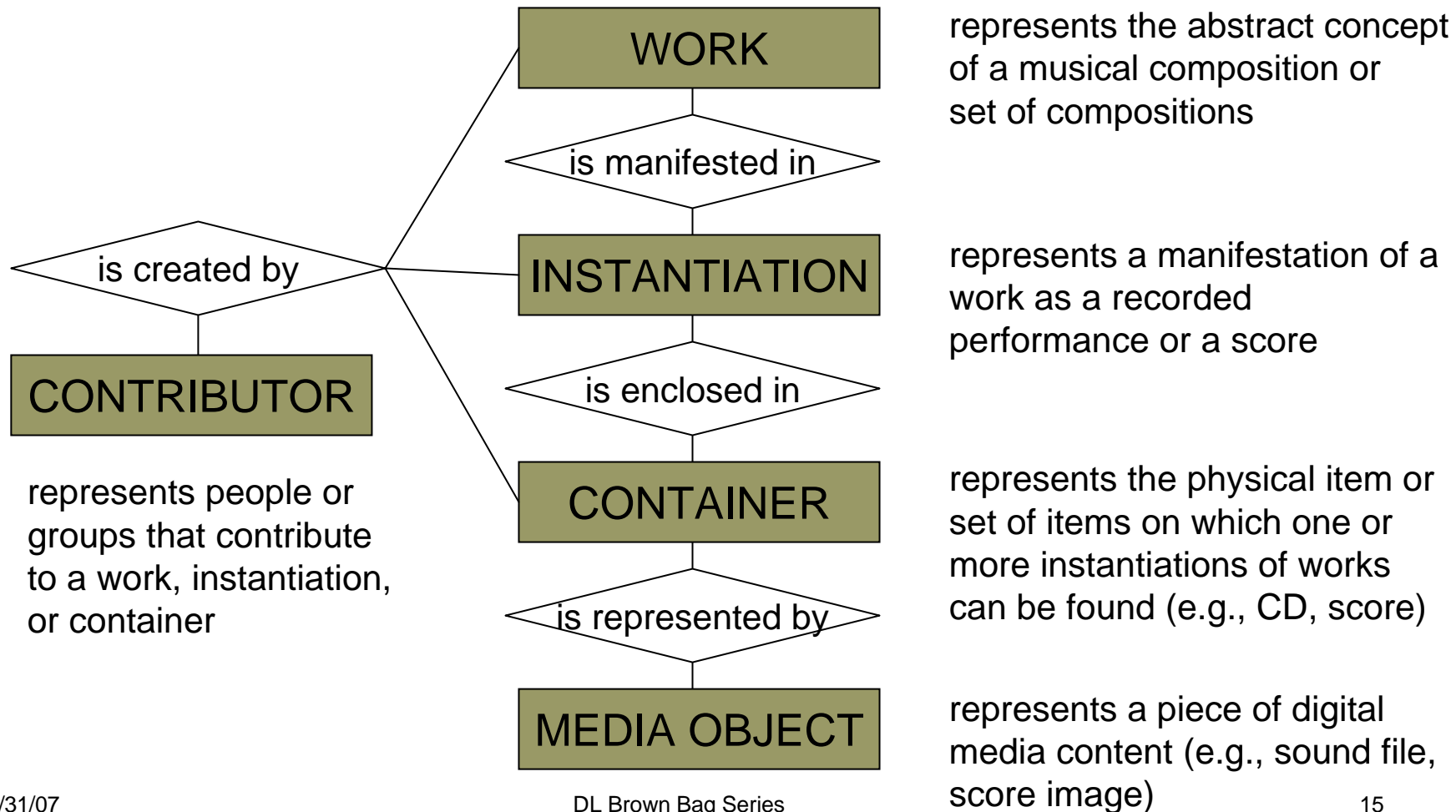
13

slide courtesy of Jon Dunn, DLP

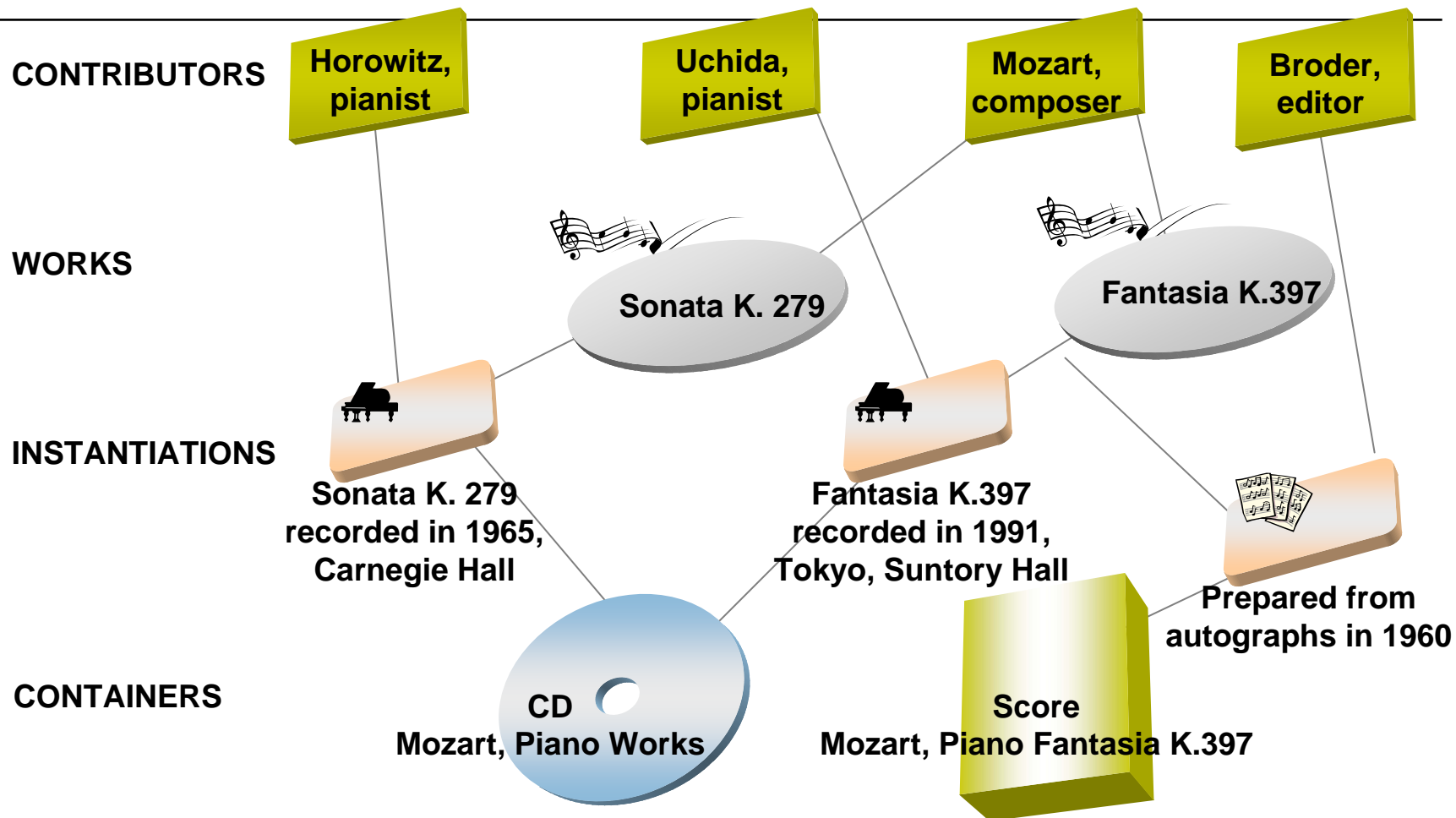
Work-based metadata model

- Developed in 2001
- Data model and cataloging guidelines developed locally specifically for the project
- Decision to develop locally stemmed from need to “bind” any recording to any score of the same Work easily

Current locally-designed model



V2 Data Model: Example



Mapping from MARC/AACR2

- Different conceptual model is a challenge
 - V2 = work is focus of description
 - MARC/AACR2 = publication/release is focus of description
- V2 record creation process starts with import from MARC bibliographic records
- MARC authority records imported for automatically recognized or cataloger-identified Works
- Cataloger manually creates Instantiations of Works, enhances data to fit V2 model

Variations3 (2005-2008/9)

- Funded by a three year IMLS National Leadership Grant
- Indiana University:
 - Digital Library Program
 - Cook Music Library
- Partners:
 - University of Maryland
 - Tri-College Consortium: Haverford, Swarthmore, Bryn Mawr
 - New England Conservatory
 - The Ohio State University
 - New York University / New World Records
Database of Recorded American Music

Variations3 goals

- Transform Variations2 into a system that can be deployed by variety of institutions
- Add access to licensed music content in addition to locally digitized content
- Continue to explore improved searching and browsing capabilities through a new metadata/cataloging model
- Develop an organizational model for sustaining the software into the future

FRBR as an alternative model

- “Functional Requirements for Bibliographic Records”
- 1998 report from IFLA
- *Conceptual model* describing the entities and relationships underlying bibliographic information
- Only recently gaining real traction
 - Open WorldCat is semi-FRBRized
 - New RDA content standard will be based on FRBR principles

FRBR Group 1 entities

WORK

“the intellectual or artistic realization of a *work*”
 “a distinct intellectual or artistic creation”
 “the physical embodiment of an *expression* of a *work*”
 “a single exemplar of a *manifestation*”

is realized through

EXPRESSION

is embodied in

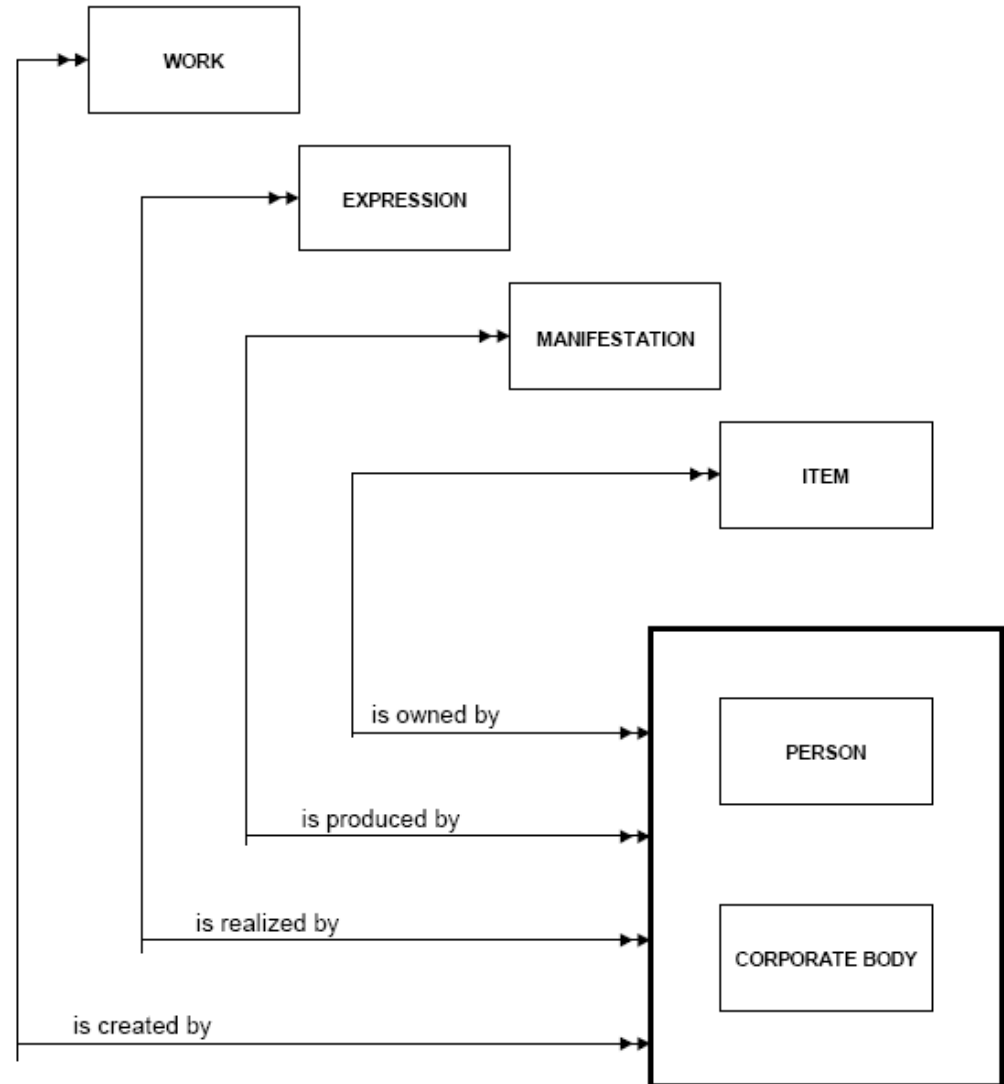
MANIFESTATION

is exemplified by

ITEM

w1 Harry Lindgren's *Geometric dissections*
 w1 Ronald Hayman's *Playback*
 w1 Franz Schubert's *Four quintet*
 dissections of the composer's score
 published in the book published in 1964 by Van
 Nostrand
 Quartet and book published in 1973 by
 Dover
 w2 revised text entitled *Recreational*
problems in geometric dissections
 es a performance by the Amadeus
 Quartet and the book published by the
 author
 Dover

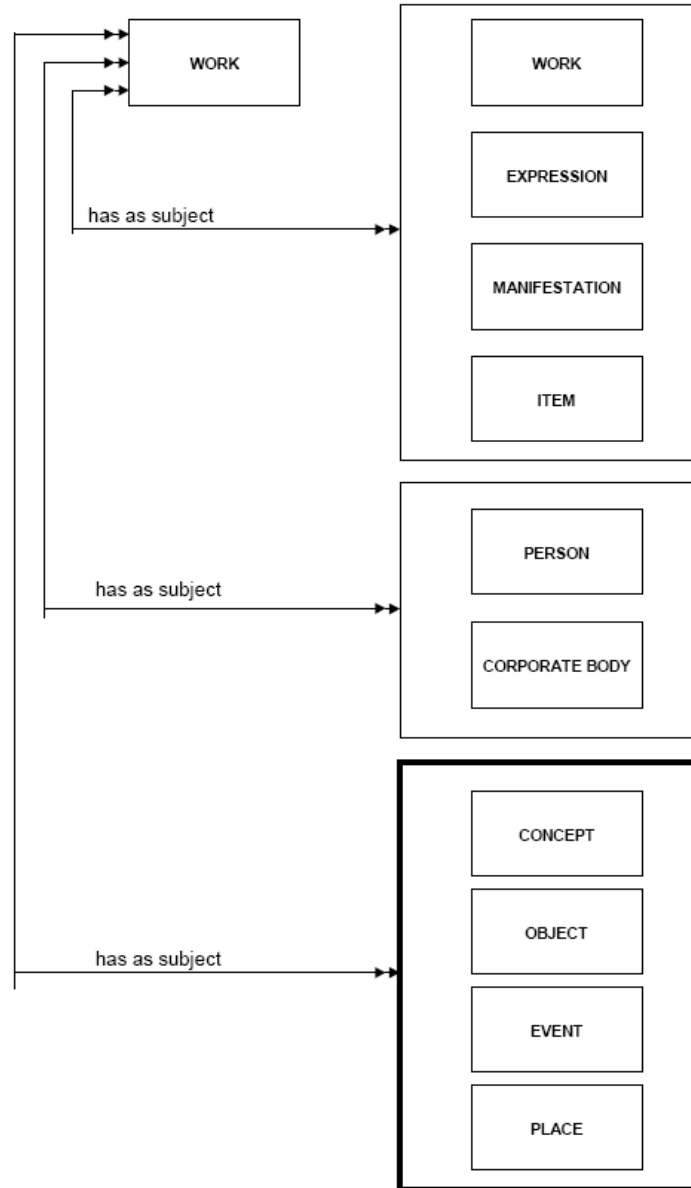
Figure 3.2: Group 2 Entities and “Responsibility” Relationships



FRBR Group 2 entities

FRBR Group 3 entities

Figure 3.3: Group 3 Entities and “Subject” Relationships



V3 vs. FRBR – loose mapping

Variations2 Entity	FRBR Group 1 Entity
Work (more concrete than FRBR Work)	Work
Instantiation (can only appear on one Container)	Expression
Container (includes some copy-specific data)	Manifestation
Media Object (defined as a digital file)	Item

Possible benefits of moving to FRBR

- Improve system sustainability
- Better integration with future catalogs
- More easily support cooperative cataloging
- Get some other features of the model “free”
 - Group 2 and 3 entities
 - User tasks

Possible drawbacks of moving to FRBR

- No approved binding of FRBR conceptual model to a true data structure exists
 - Unclear what it means to be “FRBR compliant”
 - We’d have to make up our own data structure based on the standard conceptual model
- Our current model is so close to FRBR, it is unclear if the benefits will outweigh the costs

Current status of switch

- FRBR modeling documentation created
 - Report on applying FRBR to music
 - Data dictionary (draft)
 - Schema (draft)
- Switch still in proposal stage
 - Advisors believe it's a good idea
 - We don't know if we have time to implement it as part of current project
- Still undecided as to how to model non-musical content

EVIADA

From standard model to local model

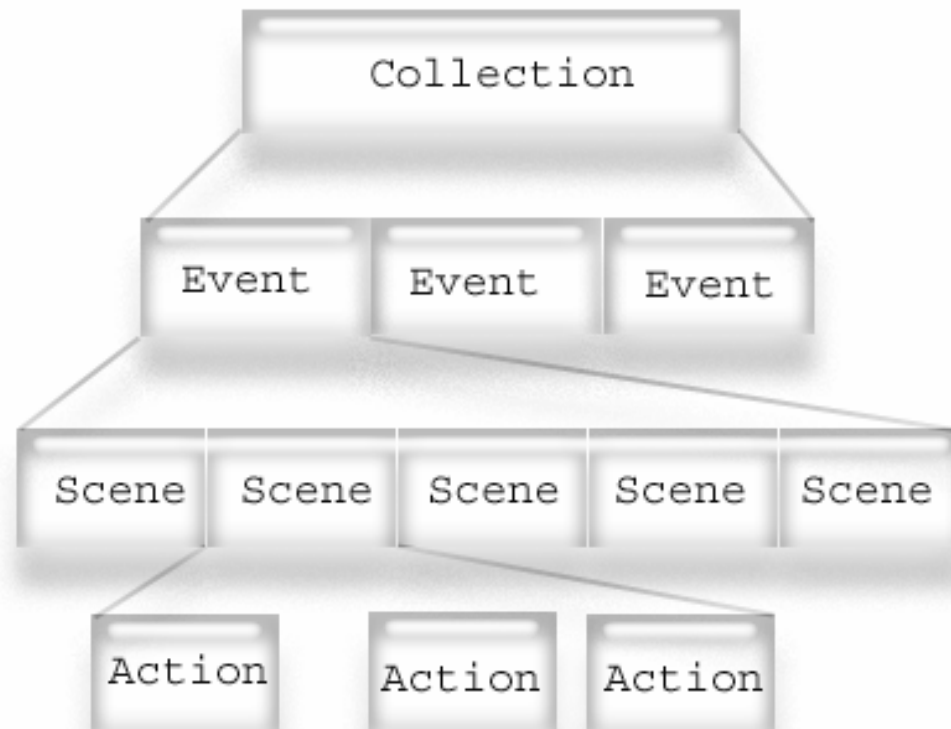
EVIADA project

- Ethnographic (formerly Ethnomusicological) Video for Instruction and Analysis Digital Archive
- Mellon-funded partnership between IU and University of Michigan
- Goals
 - Preserve field video currently stored on researchers' shelves
 - Provide access to content of field video for teaching and research

EVIADA timeline

- Phased development
 - Planning Phase 2001 – 2002
 - Development Phase 2003 – 2005
 - Sustainability Phase 2006 - 2009
- Metadata model designed and implemented during Development Phase

EVIADA conceptual model



EVIADA metadata creation

- Collection-level MARC record created based on researcher-provided information
- Technical and digital provenance metadata captured during digitization/transfer process
- Researchers annotate their own video, segmenting into events, scenes, actions
 - Extended descriptions
 - Controlled vocabulary in specified categories

Original metadata model

- ❑ MODS descriptive metadata
- ❑ Forthcoming AES audio technical metadata
- ❑ Slightly revised version of LC video technical metadata
- ❑ Forthcoming AES process history (digiprov) metadata
- ❑ METS wrapper

Use of MODS

- One MODS record for each:
 - collection
 - event
 - scene
 - action
- Potentially hundreds of MODS records for each collection

Challenges for MODS

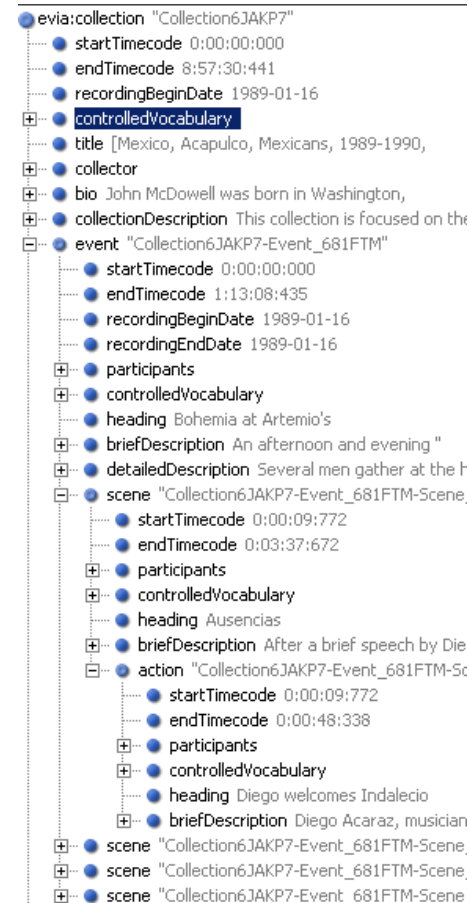
- ❑ Much information inherited from event to scene to action
- ❑ Annotation information is generally more free-form than expected in a structured bibliographic metadata standard
- ❑ EVIA controlled vocabulary categories didn't match MODS “subject” elements

New required functionality stretched MODS usage too far

- Text formatting
 - lists
 - paragraphs
- Glossary
- Bibliography
- Video technical problems
- Transcriptions
- Translations

New internal descriptive model

- More naturally matches data as it is recorded by annotators
- Hierarchical collection/event/scene/action
- Goes beyond “bibliographic” information
 - timecodes
 - text markup
 - internal linking
- Still stores technical and process history metadata in standard formats
- Could export any needed combination of descriptive and technical/process history metadata together in a single METS wrapper



Also provide standard representation

- Designed for sharing, not internal representation; therefore can afford to leave things out
- EAD
 - hierarchical, for sharing with archives, although event/scene/action not the normal hierarchy
 - one document has entire collection hierarchy
- MODS
 - for sharing with libraries
 - record can be generated for collection, event, scene, action on demand

Lessons learned

Or, so, now what?



Let's be frank

In an environment like IU, there will never be one single solution, even for a relatively narrow class of material

Assessing standards

- Clearly define functional requirements – what functions does your descriptive metadata need to support?
- The functional requirements suggest a certain conceptual model to underlie your metadata
- Compare existing descriptive metadata structure standards against your functional requirements and conceptual model

Good practice

- Use a standard internally whenever it meets defined functional requirements
- When you do choose to develop locally, take as much inspiration as you can from published standards

The increasing role of conceptual modeling

- Trend is toward clearer conceptual models, e.g., DCMI Abstract Model, RDA
- Will likely result in better interoperability among metadata standards
- Result *may* be conformance to conceptual models becomes more important than conformance to metadata structure standards

The bottom line

- ❑ Every collection/project needs a clearly defined metadata model
- ❑ Don't just follow standards and guidelines – *understand* them
- ❑ Must have the capability to generate standards-compliant metadata for specific purposes
- ❑ Internal metadata format almost unimportant if it meets these requirements

For more information

- These presentation slides:
<<http://www.dlib.indiana.edu/~jenlrile/presentations/bbfall07/standards/standardsParadox.ppt>>
- “Shareable” metadata
 - OAI Best Practices for Shareable Metadata
<<http://webservices.itcs.umich.edu/mediawiki/oaibp/index.php/ShareableMetadataPublic>>
 - Metadata for You & Me
<<http://images.library.uiuc.edu/projects/mym/>>
- EVIADA <<http://www.indiana.edu/~eviada/>>
- Variations3
<<http://www.dlib.indiana.edu/projects/variations3/>>