

PROBLEMS AND DIRECTIONS IN METADATA FOR SOUND RECORDINGS

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## Introduction

The discographic universe—to borrow the “bibliographic universe” concept used by the International Federation of Library Associations Study Group on Functional Requirements for Bibliographic Records (or FRBR) (IFLA 1998)—has suffered lack of effective control under the metadata technologies used most widely in libraries and archives around the world. Traditional metadata standards were developed with books as the prototypes for all collection materials, and on the assumption that a physical object held in a collection was the most logical starting point. The result has been an inability to deliver relevant results to users querying digital library catalogues by provided sufficient exposing logical relationships between works.

In recent history, there has been heightened interest in music metadata in general, which can be attributed broadly to shifts in attitude and technology. This paper will specifically address current issues in the cataloguing of audio recordings. To borrow the words of a heading that appears in Smiraglia's introductory essay to his extensive bibliography on music metadata: “sound recordings complicate things.” (2006, 7) The focus will be primary on digitized collections of musical recordings, but the experiences of archivists<sup>1</sup> dealing with other types of audio content will also be considered where their omission would serve little purpose, as in ethnographic collections or radio archives where recordings of music and speech are intermingled (Danielson 2002).

Recordings were not always taken seriously in libraries as research material nor regarded as valuable records of history in memory institutions. While recordings continue to occupy marginal positions to their textual counterparts in those contexts, their status as research material and as worthy additions to the holdings provided to users for general interest and pleasure has improved considerably.

Automated cataloguing methods and information retrieval technology remove former constraints on the volume of information that can be stored and the ways in which it can be manipulated and accessed. The World Wide Web represents a colossal shift in terrain and presents new possibilities for the exchange and aggregation of metadata among commercial, academic, and

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<sup>1</sup> It is difficult to speak of issues that concern a wide range of institutions where information professionals of various job title work with collections of sound recordings without using terms like “archivist” and “librarian” interchangeably. The criteria that separate these professions when it comes to textual material (i.e. publications are the concern of librarians while unpublished records fall to archivists) do not have strictly observed counterparts in the area of sound archiving, though it is true that “music libraries” likely contain more commercially released music and the term “sound archives” has a tendency to apply to collections that extend to field recordings and other historical audio artefacts.

user-driven databases. At the same time, commercial music information retrieval (MIR) services on the web have radically altered the expectations and searching tactics of library users (Danielson 2002). Technological shifts have led to the retrospective conversion of older catalogues into online ones and for the development of faceted search tools designed for recordings specifically. However, cooperatively-developed strategies to effectively represent discography in metadata in such a way as to promote interoperability have been slow to emerge.

This essay should be read as an introductory investigation into the topic of metadata for recordings, written in anticipation of future work that will delve more deeply into the technical details of the issues discovered through this preliminary survey of literature and online resources. This stage has been valuable in gaining an understanding of the context in which current discussions emerged and the slew of metadata standards in use and under ongoing examination.

In the latter part of the paper, I will provide a brief survey of recent or current projects in digitized music archiving, with an expanded description of one such project being undertaken at the British Library. At this point, the survey of case examples does little more than draw attention to the surge in activity in the area of digital library construction, motivated by a number of trends including the dropping costs of digital storage and the identification of large cohorts of recordings within existing collections that have passed into the public domain making them instant candidates for focussed efforts in the direction of increasing access (Lai et al. 2005). It is important to keep these projects in view—especially those taking place at large, influential institutions—as we simultaneously observe efforts on the part of professional organizations to establish better standards, formats, conceptual models and syntax rules in the hopes of widespread implementation.

### **Current Issues in Metadata for Sound Recordings**

Music librarians have independently adapted metadata standards from existing archival or library guidelines in order to bring collections of recordings under intellectual control in computerized catalogues and to deliver access to digital collections through online interfaces. If there is one development worth highlighting for having emerged from multiple contexts and met with the approval of most of the professional community, it is the “epistemology of the work,” (Smiraglia 2006, 6) as an abstract, non-physical entity comprising a distinct artistic or intellectual creation (IFLA 1998). It was the adoption of entity-relationship databases that revealed the musical work as an entity in itself, independent of the single or multiple expression(s) of that work and the physical carriers on which they are stored (Smiraglia 2001, 2006).

The work is the top-level entity in the FRBR conceptual model, drafted by the IFLA in 1998 and used as the basis for RDA, expected for release within a year (IFLA 1998, 2009; Tillet 2004). FRBR is to some extent brings concepts music librarians have long been working with into a formal model as a step towards making those concepts operational (Boyd 2008, IFLA 2009, Tillet 2004). The 1978 revisions to the Anglo-American Cataloguing Rules (AACR), which resulted in the release of AACR2 (Gorman and Winkler 1998), included a number of changes that were of particular significance to the way recordings are catalogued (Smiraglia 2006). Most of the entities proposed by FRBR can be represented in AACR2, and some have argued that the same effect of implementing FRBR as a new data model could be simply achieved by redesigning a more sophisticated faceted search engine to allow AACR2 metadata encoded as MARC to be manipulated to reveal relationships considered to be functional requirements under FRBR (Boyd 2008). However, FRBR was the outcome of a choice to deliberately derail the drafting of a new revision to AACR2 in favour of a more radical departure (Tillet 2004), permitting music librarians in particular to step away from any physical object-centred model and to do away with problems of having to lump too many kinds of data into the bibliographic fields of MARC-structured records (Boyd 2008; Hemmasi 2002; Riley 2005; Weitz 1990).

A few have voiced the criticism that basing RDA on the foundations established by AACR2 will prevent the new standard from being radical enough to address those most glaring problems (Boyd 2008). The more common sentiment, however, is concern about the size of the task of implementing a new system, and easing the process of implementing the standard into existing AACR2/MARC catalogues by maintaining certain continuities is regarded as crucial to achieving a level of compliance significant enough to allow goals of interoperability and metadata sharing to be met.

In AACR2/MARC catalogues, *author* and *title* are the most emphasised filing agents. The discographic equivalents are defined poorly and frequently don't contain information that is likely to reflect the “known” aspects of user queries. *Author* is interpreted as equivalent to composer most of the time (Hartsock 2004), but it is frequently the case that the performers involved in a recording are poorly indexed despite their importance to effective searching and retrieval. The usefulness of *title* as an entry point is limited when a recording is an anthology of works by different artists (Smiraglia 2006), and limited further when a title has to be assigned by the cataloguer, as in cases where the recording was not a commercial release. Even some commercial releases, such as “singles”, do not

have titles that apply to the recording as a discrete unit, in which case the cataloguer may need to enter each side separately. A collection of recordings can't be well represented by author-date discography, even in the context of a basic search. Realistically, a collection of recordings can't be represented, even superficially, by discography based on any mere two entities.

Music archivists and librarians have become increasingly aware that users need to navigate collections of recordings loosely using fuzzy queries (Riley 2005). Recognition of this, especially in academic settings, is relatively new. Public libraries have traditionally prioritized discovery through browsing, but mostly as it applies to the physical arrangement of recordings on circulating hard-copy media. Academic music librarians have been more concerned with the intellectual arrangement of their holdings, leading the efforts to liberate recordings of distinct works buried in anthology recordings through better indexing of metadata (Smiraglia 2006). Their priority has been to ensure their systems could retrieve as many relevant records as possible for known item queries.

The “known item query” is in some ways a product of academic traditions that generate knowledge about music. Academic music libraries have traditionally been most concerned with the user who is studying recordings of well-documented works falling under the popular conception of “classical” music, or to put it differently, music in the “Western art tradition” (Smiraglia 2001, Riley 2005), which could be alternatively termed the European art music tradition, trusting the term “tradition” to imply the inclusion of some music not actually written or recorded in Europe and using “art music” to draw a foggy distinction between itself and popular music. However, fuzzy searching is now recognised as being key to providing effective access to all kinds of collections of sound recordings. Increased concern for the fuzzy searcher coincides, I think significantly, with growing interest in musics about which neither librarians nor users are likely to have the same degree of encyclopedic knowledge. Human insight and the availability of supporting information has a strong effect on how well a set of metadata standards can translate to a strong and relatively complete catalogue, and it is wise to anticipate that a great number of entity relationships will be missed when it comes to recordings of musics that have not been identified by music historians and other scholars.

### **Metadata for Recordings in Practice**

In spite of the challenges, digital music collections are being enthusiastically developed in large and small libraries, archives, and museums in order to increase access, reduce physical wear to analogue media, and as last-resort rescue missions for the audio content of severely degraded media. Archivists working with rare recordings have especially embraced digitization as a way to commit the

“last, best play” (Danielson 2002, 4) of original media objects to a digital repository that can match or exponentially increase the level of access to the approximate content of the original.

In the face of conflicting, inconclusive and scant practical advice from the community, music information professionals must elect from among traditional but deprecating standards, novel but unstable alternatives, and idiosyncratic, *ad hoc* systems. In the case of digital libraries of recordings, it has been necessary to employ a combination of these strategies, as no set of metadata tools tailored to this kind of work have been clearly established.

We are told we are on the eve of the release of a new metadata standard that is being touted as a superior alternative to and natural replacement of AACR2, and which is promised to be substantially better for music. Whether the RDA will succeed in revolutionizing the discographic universe is yet to be seen and hinges greatly on the decisions of institutions of influence such as the Library of Congress. Nonetheless, it is a situation that asks archivists and librarians to keep an open mind to change and plan accordingly. One strategy is to “over-catalogue” by entering more metadata than is available to the user, at least as indexed entry points, using an adaptable encoding standard like MARC.

### **Current Projects in Digital Sound Libraries**

The purpose of this section is to aggregate a few examples of recent or current music and sound digitization projects that have some goal of providing access to the collection through an online catalogue. Each demonstrates different combinations of metadata standards in practice. Below is a table summarizing key information and useful links to function as a research aid on three projects: The Virtual Gramophone (Library and Archives Canada), Archival Sound Recordings (British Library), and Variations3 (Indiana University). Data in the table is drawn from the websites of the projects themselves, as well as from Lai (2007) Dunn and Isaacson (2002), and personal communication with Chris Clark, head of selection and documentation at the British Library Sound Archive (2009). Other notable examples that could be explored in future research are the Arhoolie Foundation's Strachwitz Frontera Collection of Mexican and Mexican American Recordings, and any of the online digital music collections falling under the aegis of the Library of Congress American Folklife Center (e.g. The Alan Lomax Collection, The Florida Folklife Collection). A few brief comments on each project follow the table.

	Collection	Metadata Standard(s) in Use or as Basis	Additional Information
<b>Virtual Gramophone: Canadian Historical Sound Recordings (Library and Archives Canada)</b>	<ul style="list-style-type: none"> <li>• Mostly 78-rpm records (some cylinders) released in Canada</li> <li>• Some foreign recordings featuring Canadians</li> <li>• Accompanying images, text</li> <li>• (2006) 4,700 audio files</li> <li>• (2006) 13, 000 titles in DB</li> </ul>	AACR-2  Descriptive Cataloguing Manual, National Library of Canada	Description of project phases: <a href="http://www.collectionscanada.gc.ca/4/4/m2-120-e.html">http://www.collectionscanada.gc.ca/4/4/m2-120-e.html</a>
	Catalogue: <a href="http://www.collectionscanada.gc.ca/4/4/m2-5000-e.html">http://www.collectionscanada.gc.ca/4/4/m2-5000-e.html</a>	Description of fields: <a href="http://www.collectionscanada.gc.ca/4/4/m2-5132-e.html#b">http://www.collectionscanada.gc.ca/4/4/m2-5132-e.html#b</a> Metadata Framework (LAC): <a href="http://www.collectionscanada.gc.ca/cataloguing-standards/040006-2221-e.html">http://www.collectionscanada.gc.ca/cataloguing-standards/040006-2221-e.html</a>	
<b>Archival Sound Recordings, British Library</b>	<ul style="list-style-type: none"> <li>• 44, 500 digitized recordings (out of 3.5 million total)</li> <li>• 25, 300 freely available</li> <li>• music, nature, ethnographic</li> </ul>	METS <sup>2</sup>  Dublin Core compliant  Site-specific rules based partly on AACR2	OAI-PMH <sup>3</sup> Compliant  Information about OAI-PMH: <a href="http://www.openarchives.org/">http://www.openarchives.org/</a>
	Catalogue: <a href="http://sounds.bl.uk/Default.aspx">http://sounds.bl.uk/Default.aspx</a> Project information: <a href="http://sounds.bl.uk/TextPage.aspx?page=projectinfo">http://sounds.bl.uk/TextPage.aspx?page=projectinfo</a>	METS profile: <a href="http://www.bl.uk/profiles/sound/METS_profile.pdf">http://www.bl.uk/profiles/sound/METS_profile.pdf</a>	
<b>Variations<sup>3</sup>, Indiana University</b>	<ul style="list-style-type: none"> <li>• actually a software system that provides access to digital libraries</li> <li>• began with digitized segment of IU Cook Music Library</li> <li>• at least 6,000 items digitized from CDs, cassettes and LPs</li> <li>• planned expansion to other libraries</li> <li>• focus on “classical” music</li> </ul>	<ul style="list-style-type: none"> <li>• V3-specific model, based closely on FRBR</li> <li>• open-source software package include algorithms to map from MARC catalogue to V3</li> </ul>	Project page: <a href="http://www.dlib.indiana.edu/projects/variations3/">http://www.dlib.indiana.edu/projects/variations3/</a>

2 The Metadata Encoding and Transmission Standard, a standard designed specifically to help bind different kind of metadata in the context of digital libraries (Lai et al. 2005)

3 Open Archives Initiative for Metadata Harvesting

## **The Virtual Gramophone: Canadian Historical Sound Recordings (Library and Archives Canada)**

This project is aimed at providing the public with an educational look at the era of the 78-rpm phonograph record in Canadian History. The archive is accompanied by enrichment materials for teachers. More details about their digitization standards are available than those pertaining to metadata. Brief descriptions of their cataloguing fields indicate that a concept of the “musical work” is not used in the same way as other examples, as the closest equivalent—the “larger work”—is only applied to songs that are parts of multi-song works such as musicals, and does not indicate an abstract entity that would unite expressions of the same artistic creation independently of the title.

### **Archival Sound Recordings (British Library)<sup>4</sup>**

The British Library Archives “Archival Sound Recordings” project presents a special interface, separate from both the British Library’s main catalogue and the regular sound catalogue. It is a curated showcase of most of the archival collection that has been digitized and contains a high proportion of never-released materials. The full sound archive catalogue serves as a repository of metadata that can be manipulated in various ways to present very different “views” of items in the collection. The catalogue is organized according to an ontology unique to the BL Sound Archives but is an example of FRBRy principles, including an abstract “work” entity, emerging independently of FRBR in answer to pragmatic needs<sup>5</sup>.

### **Variations3**

Beyond the pressing need to improve the quality of discography deliverable through existing standards, metadata records for recordings are by nature highly complex and rich in data, and therefore function as particularly good examples to illustrate the capabilities of emerging tools. A project based at Indiana university that will implement FRBR in the Variations3 digital music library will be of obvious importance to the field of music libraries, but will also be important to the wider field of information professionals as one the most thorough studies into the challenges and benefits

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4 An in-depth case study on this project was originally proposed for this paper, but the historical and technical material about the project proved difficult to summarise without a better understanding of the topic in general, recent trends, and the way especially large institutions draw from and simultaneously have a profound influence on established standards. I hope to continue with this section in fulfilment of coursework requirements for GLIS 609: Metadata and Access.

5 I am grateful to Chris Clark at the British Library Sound Archives for clarifying some of these details for me by emails received between Nov. 17 and 19, 2009.

of implementing FRBR (Indiana University 2009).

### **Conclusion**

The success of FRBRization projects and early implementations of RDA over the coming years will likely have a greater impact on trends in discographic metadata than anything else. Nevertheless, it takes multiple metadata tools to make a complete system, not just a structural model and a standard for content description. Better manuals for employing encoding languages and for implementing content standards with instructions specific to the domain of recorded sound and even more specifically to digital libraries of recorded sound are still needed, even for well established standards like MARC and AACR2. Supporting thesauri designed specifically for recordings will be necessary and can be used to improve metadata in catalogues structured and encoded to different standards, improving interoperability between various libraries (Danielson 2002). As an example of work being done to this end, Lai and Fujinaga have been developing a data dictionary to improve consistency in the vocabulary and formatting used in metadata for phonograph records (2006, 2007).

This preliminary analysis of current issues in metadata for recordings and the contexts from which they emerge reveals a terrain of uncertainty, but one on which some sound archivists and librarians have succeeded in assembling functional sets of metadata tools and with them made great strides in availing digitized recordings to the public or their academic users. The focus has been on AACR2 and its relationship to FRBR/RDA, but a superficial examination of several digital sound libraries indicates that a more thorough analysis will demand coverage of a more comprehensive inventory of standards and formats (e.g. METS, XML) and their relationships to one another. Concerns shared widely in the professional community are ousting the central position of the physical object in favour of some conception of the music work, and finding ways to liberate metadata lumped into free text bibliographic fields in order to provide users with a better range of entry points and more flexible faceted searches.

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