Toward Technology-Driven Metadata Encodings for Historical Recordings

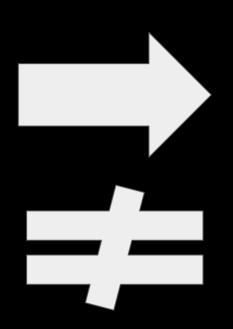Joshua Neumann, Kristina Richts-Matthaei – Akademie der Wissenschaften und der Literatur | Mainz

Digital Libraries for Musicology, November 10th, 2023 – Biblioteca del Conservatorio di Milano

Pre-digital recording technology presents numerous challenges and idiosyncrasies for cataloguing and use. Discs and cylinders underwent considerable change in the recording and playback speed over the first twenty-five years of the 20th century before final industry standardization of 78.2 rpm in 1925. From 1910 to 1925, most, but by no means all, utilized a speed of 78-80 rpm. Before 1910, however, speeds could vary widely between 72-86 rpm (or more). Even with the advent of electronically driven rotational motors in the 1920s, changing over to them from mechanical motors was not instantaneous across the recording industry, shrouding their use in research with broad ambiguity. The continual degradation of recording media – wax, Ebonite, Durinoid, shellac, magnetic tape, vinyl – with each playback instance further obscures their usability. What results for modern users is that unless the precise recording and playback speeds are known, significant uncertainty exists for how one accesses the disc's audio contents. Even using pre-digital playback equipment, what a user ends up accessing is a hypothetical or simulacrimal sound document rather than an assuredly exact reflection of the sonic events at the time of recording. Digitization of these recordings does not automatically mitigate such challenges, but instead adds additional layers of complication for precisely defining attending metadata. Metadata accounting for these kinds of idiosyncratic properties of individual items suffer from a lacuna in current systems, even as they should readily appear with the catalogue items and research data, enabling FAIR/CARE adherence.

What information is necessary to adequately/accurately describe pre-digital and digitised pre-digital recordings in machine-readable format (MEI)?
The goal is to bring as comprehensive a metadata profile into MEI for immediate interaction with other encoded musical data expressed in a recording, re-release/-mastering of recordings.

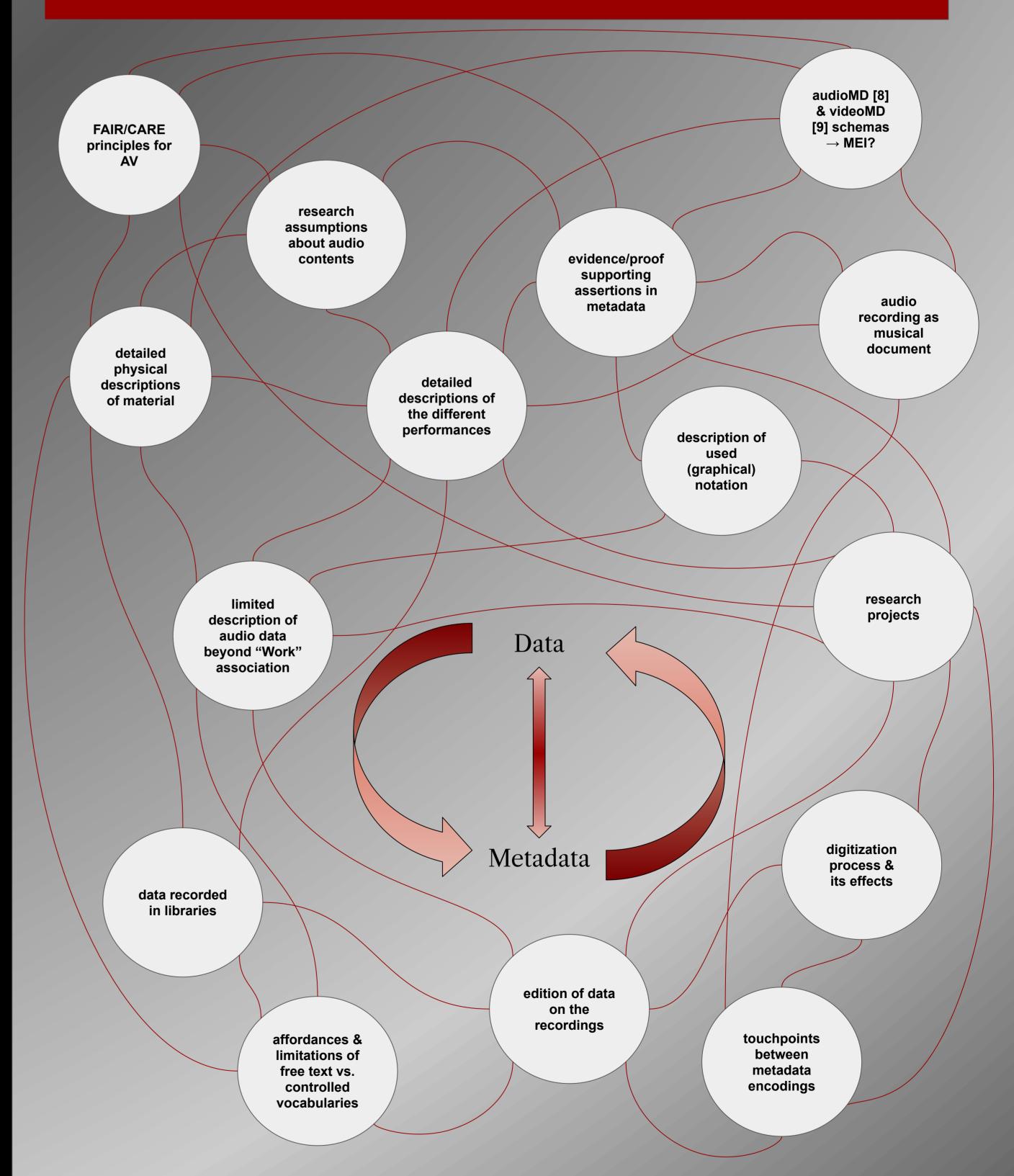Recorded 16 January 1912 → Remastered for release 1998

Where is the benefit of using MEI?
Metadata & (Notational) Data in single location

Metadata Informing Interactions with Audio Data	MARC [3]	METS [4] / MODS [5]	MEI [6]
Recording Context	Explicit/ Implicit/ Omitted	Explicit/ Implicit/ Omitted	Explicit/ Implicit/ Omitted
Persons	E	E	E
Place	E	E	E
Date	E	E	E
Corporation	E	E	E
Studio/Stage	I/O	I/O	I/O
Original/Modified Presentation	O/I	O/I	O/I
Excerpt/Complete	O/I	O	O/I
Take #	O	O	O
Recording Medium			
Category (Disc, Cassette, CD, etc.)	E	E	E
Material (Wax, Ebonite, Durinoid, etc.)	E	E	O
Recording Device	E	E	E/I
Recording Speed	I/O	I/O	I/O
Authority/Proof	I/O	O	O
Playback Speed	E	E	E
Sound Content	E	E	E
Tuning	O	O	O
Dynamics	O	O	O
Medium Noise ("listen through scratches")	O	O	O
Original Capture/Storage	E	E	I/O
Medium Lifecycle Status	O	O	O
Digitization Process			
Relation to Original	I/E	I	I/E
Represent Original Recording or Recorded Performance?	O/I	O/I	O/I
Pitch Regulation	E/I	O	O
Sample Rate	E/?	E	O
Reference/Proof	I/O	O	O
Dynamics Normalization	E/I	O	O
Process	E	O	O
Reference/Proof	I/O	O	O
Noise Reduction	E	E	O
Process	E	O	O
Contents	I/O	O	O
Musical Contents Data (Notation, e.g.)	**O**	**O**	**E**

MARC - Original [1]

How does, can, should the metadata (explicit or implicit) in main discovery interface of repositories inform research praxis?

MODS of CD Remaster [2]

Broader/Further Considerations

What information is necessary/useful/valuable for accurate historiography (from a machine-readable cataloguing perspective)?

What are affordances & limitations of treating various characteristics as metadata (elements/attributes) AND/OR data (element contents)?

FAIR/CARE adherence

DLfM Insights (add a sticky note or two–please/per favore/bitte!)

References

[1] Discography of American Historical Recordings, s.v. "Victor 698 (10-in. double-faced Red Seal)," accessed November 3, 2023, https://adp.library.ucsb.edu/index.php/object/detail/43932/Victor_698.

[2] Journet, Marcel. Wyastone Leys, Monmouth : Nimbus, [1998]®1998. 1 audio disc (79 min., 35 sec.) ; digital, CD audio ; 4 3/4 in. NI 7894 Nimbus SDA 05135. https://lccn.loc.gov/00517022.

[3] MARC 21 Format for Bibliographic Data. https://www.loc.gov/marc/bibliographic/.

[4] Metadata Encoding and Transmission Standard: Primer and Reference Manual: https://www.loc.gov/standards/mets/METSPrimer.pdf.

[5] Metadata Object Description Schema. https://www.loc.gov/standards/mods/.

[6] Music Encoding Initiative Guidelines 5.0. https://music-encoding.org/guidelines/v5/content/index.html.

[7] Victor Orchestra, Giacomo Puccini, and Marcel Journet. Vecchia Zimarra. 1912. Audio. https://www.loc.gov/item/jukebox-122657/.

[8] https://www.loc.gov/standards/amdvmd/htmldoc/audioMD.html#id69.

[9] https://www.loc.gov/standards/amdvmd/htmldoc/videoMD.html.