

# Toward Technology-Driven Metadata Encodings for Historical Recordings

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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 simulacral 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.



## 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]
	Explicit/Implicit/Omitted	Explicit/Implicit/Omitted	Explicit/Implicit/Omitted
<i>Recording Context</i>			
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
<i>Recording Medium</i>			
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
<i>Digitization Process</i>			
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
<b>Musical Contents Data (Notation, e.g.)</b>	<b>O</b>	<b>O</b>	<b>E</b>

**MARC - Original [1]**

```

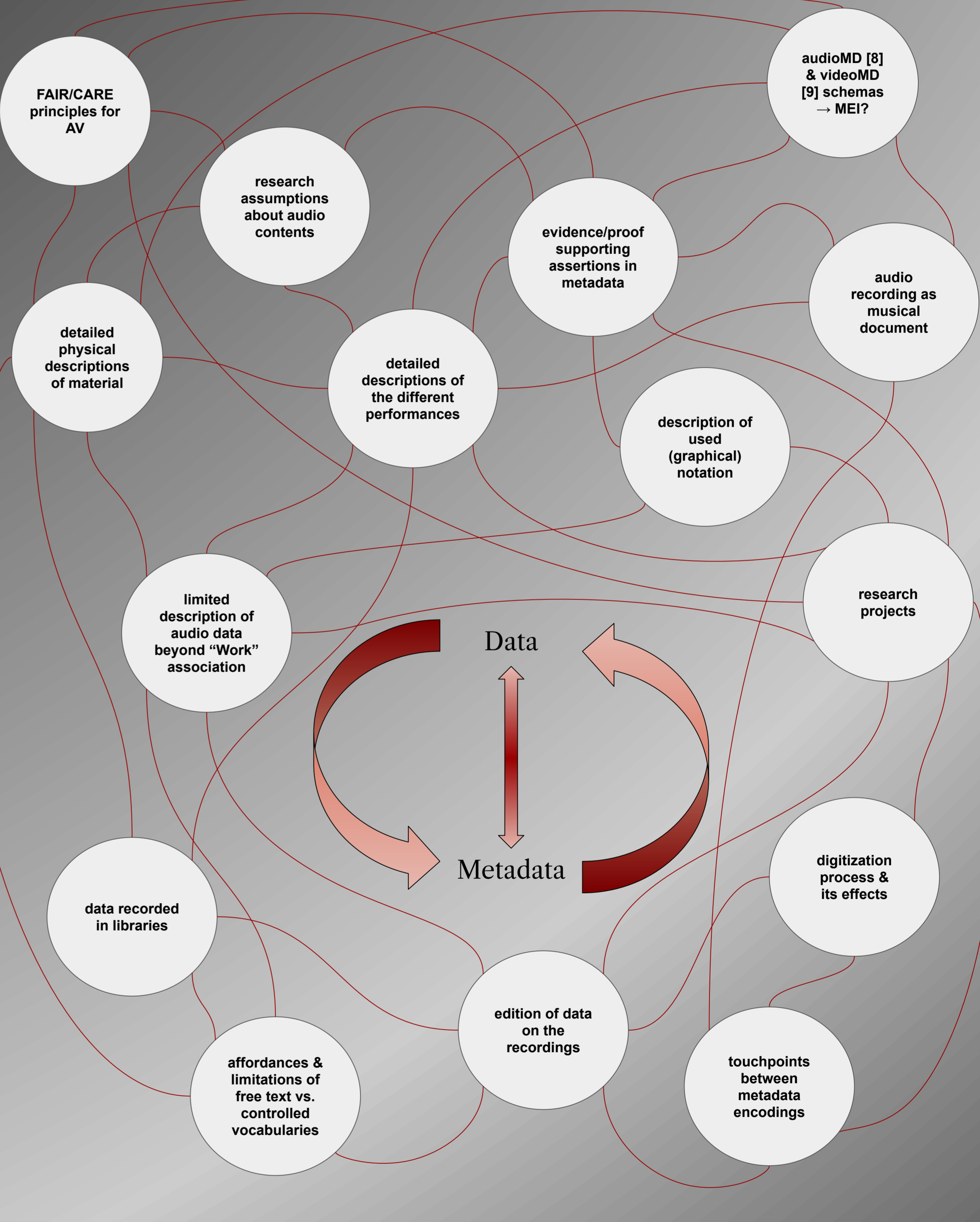
Coupling 1
007 s #b d d d d e m # f s g d # h n # i n # j m k s # l # m n # o #
0280098 4b Victor
028108-2313 4b Victor
028108-3162 4b Victor
24500Carzone del parter / 4c Friedrich von Flotow. Vecchia zimarra / Giacomo Puccini.
264 1[Camden, N.J.] : 4b Victor, #c [1912]
300 1 audio disc : 4b analog, 78 rpm : #c 10 in.
336 performed music : 4b pmi #2 rdacontent
337 audio 4b s #2 rdacontent
338 audio disc : 4b sd #2 rdacontent
340 shellac #2 rdamat
344 analog #2 rdatr
344 #c 78 rpm
344 #d coarse groove #2 rdagw
344 #g mono #2 rdasc
500 Victor 698 [B-2313 (matrix), B-3162 (matrix)].
508B Bass vocal solo, with orchestra.
546 Sung in Italian.
500 Data derived from the Discography of American Historical Recordings,
5103 Discography of American Historical Recordings. In
http://cdp.library.ucsb.edu/index.php/object/detail/43932
500 Title from disc label.
510 Marcel Journet : Victor Orchestra, Marcel Journet.
7001 Flotow, Friedrich von, #d 1812-1883, #e composer.
7001 Journet, Marcel, #e singer.
7001 Puccini, Giacomo, #d 1858-1924, #e composer.
7102 Victor Orchestra, #e instrumentalist.
74002Vecchia zimarra.
    
```

**MODS of CD Remaster [2]**

```

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/ Gounod -- Les huguenots. Piff, paff, piff, paff / Meyerbeer -- ...</tableOfContents>
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How does, can, should the metadata (explicit or implicit) in main discovery interface of repositories inform research praxis?



## References

- [1] Discography of American Historical Recordings, s.v. "Victor 698 [10-in. double-faced Red Seal]," accessed November 3, 2023. [https://cdp.library.ucsb.edu/index.php/object/detail/43932/Victor\\_698](https://cdp.library.ucsb.edu/index.php/object/detail/43932/Victor_698).
- [2] Journet, Marcel. Wyclstone 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://nlib.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/MEISPrimer.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/rljkebox-122657/>.
- [8] <https://www.loc.gov/standards/amdmv4/html/doc/audioMD.html#id69>.
- [9] <https://www.loc.gov/standards/amdmv4/html/doc/videoMD.html>.

## 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/bittell!)**