Distinguishing features

• Neither *time* nor *space* is a dominant consideration
• Focus is on *repurposable data*, interoperability
• Examples
  • *Archiving*: canonical format that facilitates interoperability
  • *Interchange*: canonical format that is easily interpreted by sending and receiving systems whose formats may be unknown
  • *Analysis*: flexible format that can be modified to suit a range of needs (can sometimes be distilled from richer format)
Distinguishing features

• Neither *time* nor *space* is a dominant consideration
• *Environment* may be extensive; focus on interoperability

• **Examples**
  • *Archiving*: EsAC (monophonic), MuseData (polyphonic)
  • *Interchange*: MusicXML, MEI
  • *Analysis*: Humdrum Toolkit (main format = *kern*)
MuseData: Turkish march

Print suggestions

Sound suggestions
**MuseData** network models

Classical music focus

- Analytical apps
- Sound apps (MIDI only)
- Notation apps (Full encodings)
Comparison of models
MuseData encodings (2012)

- c. 1250 works
Part/score orientation in *MuseData*

1. Encode voice by voice for full movement
2. Add lyrics, other refinements
3. Repeat until all movements are encode
4. Assemble score
MuseData: encoding

- Two-step process
  - MIDI-level data
  - Non-sounding data
- Serial processes
- Storage formats
  - Stage 1 (pitch, duration)
  - Stage 2 (stems, lyrics, etc)
  - Internal format (notation)
MuseData: instantiations

- **sound**: used to compile MIDI sound files
- **score**: used to print scores
- **parts**: used to print parts
- **short**: used to print short scores
- **tracks**: used for analysis
- **midi**: data specifically used to compile MIDI files (e.g., channel assignments and instrument assignments)
- **data**: anything and everything

**Input keys**

<table>
<thead>
<tr>
<th>Field Type</th>
<th>Field Identifier</th>
<th>Field Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>key</td>
<td>K:</td>
<td>integer (positive or negative)</td>
</tr>
<tr>
<td>divisions per quarter note</td>
<td>Q:</td>
<td>integer (positive only)</td>
</tr>
<tr>
<td>time designation</td>
<td>T:</td>
<td>two integers (positive only)</td>
</tr>
<tr>
<td>clef</td>
<td>C:</td>
<td>integer (positive only)</td>
</tr>
<tr>
<td>clef</td>
<td>Cn:</td>
<td>integer</td>
</tr>
<tr>
<td>transposing part</td>
<td>X:</td>
<td>integer (positive or negative)</td>
</tr>
<tr>
<td>number of staves for part</td>
<td>S:</td>
<td>integer (positive only; default = 1)</td>
</tr>
<tr>
<td>number of instruments represented</td>
<td>I:</td>
<td>integer (positive only; default = 1)</td>
</tr>
<tr>
<td>directive (last field on line)</td>
<td>D:</td>
<td>ASCII string</td>
</tr>
<tr>
<td>directive (last field on line)</td>
<td>Dn:</td>
<td>ASCII string</td>
</tr>
</tbody>
</table>
**MuseData**: Conventional input files

![Sample file for openings measures of “Three Blind Mice.”](image)

**Input data (Stage 1)**

<table>
<thead>
<tr>
<th>Measure 1 (E4, D4, C4, rest, E4, C4, rest)</th>
<th>Measure 3 (G4, F4, E4, C4)</th>
</tr>
</thead>
</table>

**Enhanced data (Stage 2)**

**Mozart trio: V1**
Encoding in multiple domains: Actualities

![MuseData logo](musedata.org)

**Work Information**

- **Composer**: Haydn, Franz Joseph
- **Title**: Symphony in E-flat Major
- **Popular Title**: Drumroll
- **Copyright notice**: Copyright (c) 1994, 2000 Center for Computer Assisted Research in the Humanities
- **Rights to all derivative editions reserved.**
- **Refer to licensing agreement for further details.**
- **Scholarly catalogue**: Themenregister der Werke (TWD) 1794-1802
- **Derived from**: Dover Edition, reprint of Eulenburg Edition
- **Encoding state**: stage2
- **Error report**: None [Submit error report]

**Musical Data**

<table>
<thead>
<tr>
<th>Movement</th>
<th>Movement 1 (Adagio)</th>
<th>Movement 2 (Andante)</th>
<th>Movement 3 (Menuetto and Trio)</th>
<th>Movement 4 (Finale)</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kehr</td>
<td>MIDI</td>
<td>PDF</td>
<td>SCORB</td>
<td>stage2</td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>-----</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>1. Adagio -- Allegro con spirito</td>
<td>01</td>
<td>01</td>
<td>01</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td>2. Andante</td>
<td>02</td>
<td>02</td>
<td>02</td>
<td>02</td>
<td>02</td>
</tr>
<tr>
<td>3. Menuetto and Trio</td>
<td>03</td>
<td>03</td>
<td>03</td>
<td>03</td>
<td>03</td>
</tr>
<tr>
<td>4. Finale</td>
<td>04</td>
<td>04</td>
<td>04</td>
<td>04</td>
<td>04</td>
</tr>
</tbody>
</table>

[Visit musedata.org]
Encoding in multiple domains: samples

From PDF list

Haydn, Franz Joseph
- Symphony in E-flat Major, H I.99
- Symphony in G Major ("Military"), H I.100
- Symphony in D Major ("The Clock"), H I.101
- Symphony in B-flat Major, H I.102
- Symphony in E-flat Major ("Drumroll"), H I.103

Vivaldi, Antonio
- Concerto in E Major ("La Primavera"), Op. 8, No. 1
- Concerto in G Minor ("L’Estait"), Op. 8, No. 2
- Concerto in F Major ("L’Antiverno"), Op. 8, No. 3
- Concerto in F Minor ("L’Inverno"), Op. 8, No. 4
- Concerto in E-flat Major ("La Tempesta di Mare"), Op. 8, No. 5
- Concerto in C Major ("Il Piccolo"), Op. 8, No. 6
- Concerto in D Major, Op. 8, No. 7
- Concerto in G Minor, Op. 8, No. 8
- Concerto in D Minor, Op. 8, No. 9
- Concerto in B-flat Major ("La Caccia"), Op. 8, No. 10
- Concerto in D Major, Op. 8, No. 11
- Concerto in C Major, Op. 8, No. 12

From MIDI file list

Beethoven, Ludwig van
- Piano Concerto No. 2 in E-flat Major, Op. 19
- Violin Concerto in D Major, Op. 61
- Symphony No. 5 in C Minor, Op. 67

Haydn, Franz Joseph
- Symphony in D Major, H I.1
- String Quartet in C Major, H III.57
- Symphony in E-flat Major, H I.99
- Symphony in G Major ("Military"), H I.100
- Symphony in D Major ("The Clock"), H I.101
- Symphony in B-flat Major, H I.102
- Symphony in E-flat Major ("Drumroll"), H I.103
- Symphony in D Major ("London"), H I.104

Work Information

Copyright: Copyright © 1994, 2010 Center for Computer Assisted Research in the Humanities
Rights: All domestic rights reserved
Permissions: Rights and permissions for further details
Additional Information: Additional information

Musical Data

<table>
<thead>
<tr>
<th>Source</th>
<th>MERS</th>
<th>PDF</th>
<th>DEF</th>
<th>DOCX</th>
<th>SVG</th>
<th>OME</th>
<th>PDFG</th>
<th>PNG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
</tr>
<tr>
<td>Time</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
</tr>
<tr>
<td>Events</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>all</td>
</tr>
</tbody>
</table>